17" Auto scan Colour Monitor

Chassis :M30

Service
Service
Service

M30 107E2 GS_3

EPA POLLUTION PREVENTER

DDC/Power saving/MPR II/TCO

107E21/09H

Service Manual

Horizontal frequencies
30 - 70 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks
After the original service problem has been corrected,a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

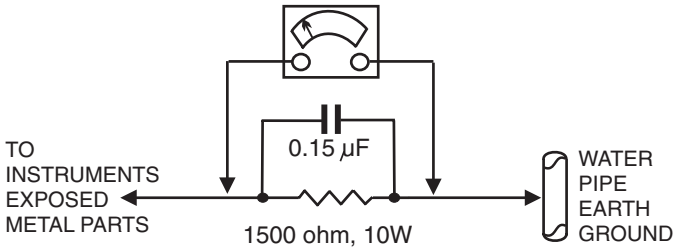
Fire and Shock Hazard
1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operated without danger of electrical shock.

* Broken line

Implosion
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn,whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation
1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the manufacturer's rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check
1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check
1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement
The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement
Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.

IMPORTANT SAFETY NOTICE

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Proper service and repair is important to the safe, reliable operation of all PHILIPS Company** Equipment.
The service procedures recommended by PHILIPS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully Read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper Service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. PHILIPS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, PHILIPS has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by PHILIPS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, PHILIPS Company Will be referred to as PHILIPS.

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from PHILIPS. PHILIPS assumes no liability, express or implied, arising out of any unauthorized modification Of design.
Servicer assumes all liability.

*** Broken Line**

Technical Data

Technical Specification*

CRT

Size and deflection	:17 inch, flat/square
Deflection angle	: 90 degrees
Dot pitch	: 0.27mm with black matrix
Face treatment	: Anti-glare, anti-static,
Light transmission	: 47%

Image size (for preset modes only)

Width	: 306 +/- 3 mm
Height	: 230 +/- 3 mm

Scanning

Horizontal scanning	: 30 - 70 KHz
Vertical scanning	: 50 - 160 Hz

Video

Video dot rate	: 108 Mhz

Input impedance

-Video	: 75 Ohms
- Sync	: 2.2K Ohms
Signal input level	: 0.7Vpp Separate sync
Sync input signal	: Separated sync. with TTL level
Sync polarities	: Positive or negative

White Color Temperature

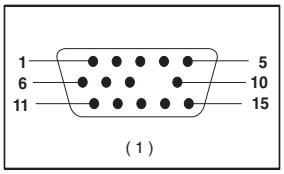
Chromaticity CIE coordinates:

at 9300 °k	x = 0.283 +/- 0.015 y = 0.297 +/- 0.015
at 6500 °k	x = 0.313 +/- 0.015 y = 0.329 +/- 0.015

Carton box

Size (with pedestal)	: 496(W)x495(H)x518(D)
Net weight	: 15 Kg
Power supply	: 90 - 264 VAC, 60 +/- 3Hz
Power consumption	: 90 Watts Max.
Operating condition	
Temperature	: 0 °C - 40 ° C
Relative Humidety	: 10 % - 90 % (W/O condensation)
Storage condition	
Temperature	: - 25 ° C - 65 ° C
Relative Humidity	: 5 % - 95 % (W/O condensation)

Pin assignment :



The 15-pin D-sub connector(male) of the signal cable :

Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Sync. Ground
3	Blue video input	11	Ground
4	Ground	12	Bi-directional data(SDA)
5	for selftest(PC ground)	13	H.Sync
6	Red video ground	14	V.Sync(VCLK)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

Data Storage

Factory preset modes:

This monitor has 8 factory-preset modes as indicated in the following table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	V
M01	VGA	720 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.47	60	-	-
M03	VGA	640 x 480	43.3	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.674	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07	EVGA	1024 x 768	68.7	85	+	+
M08		1280 x 1024	64.0	60	+	+

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature :

Power Management Definition

VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	< 73 w	0 %	Green
Stand-by	Blanked	No	Yes	< 8 w	89 %	Yellow
Suspend	Blanked	Yes	No	< 8 w	89 %	Yellow
OFF	Blanked	No	No	< 8w(MPRII)	97 %	Amber

This monitor is ENERGY STAR compliant.

As an ENERGY STAR Partner, PHILIPS has determined that this product meets the ENERGY STAR guidelines for energy efficiency

ENERGY STAR® is a U.S. registered mark. AS AN ENERGY STAR PARTNER, DELL Computer Corporation HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY.

Front control & OSD

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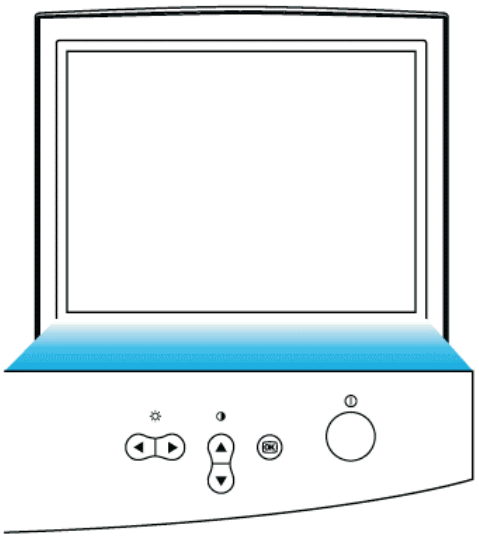
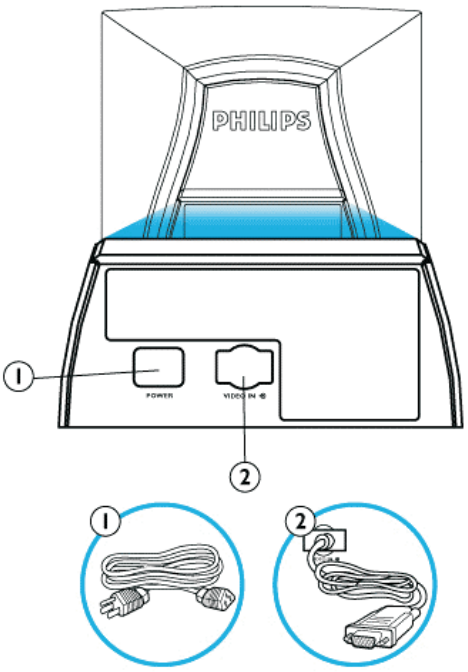
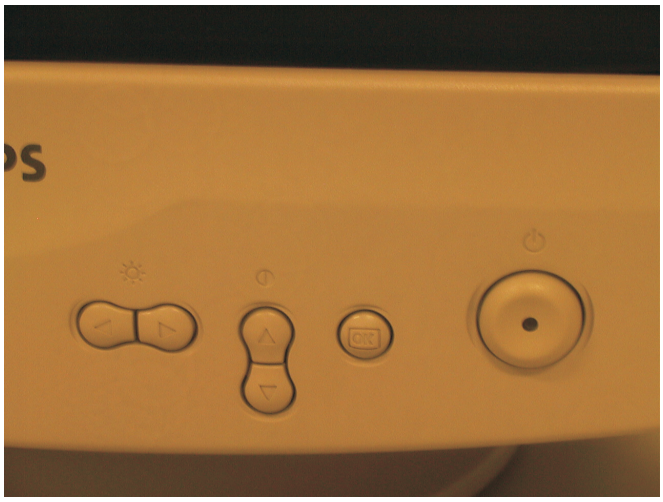
Front View



Rear view



Front control



1. Power in - attach power cable here.
2. Video In - this is a cable which is already attached to your monitor. Connect the other end of the cable to your PC.

Description of the On Screen Display

What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly though an on-screen instruction window. The user interface provides user-friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

On the front controls of your monitor, once you press the OK button, the On Screen Display (OSD) Main Controls window will pop up and you can now start making adjustments to your monitor's various features.

Use the ◀ ▶ or ▲ ▼ the keys to make your adjustments within.

Power button switches your monitor on.

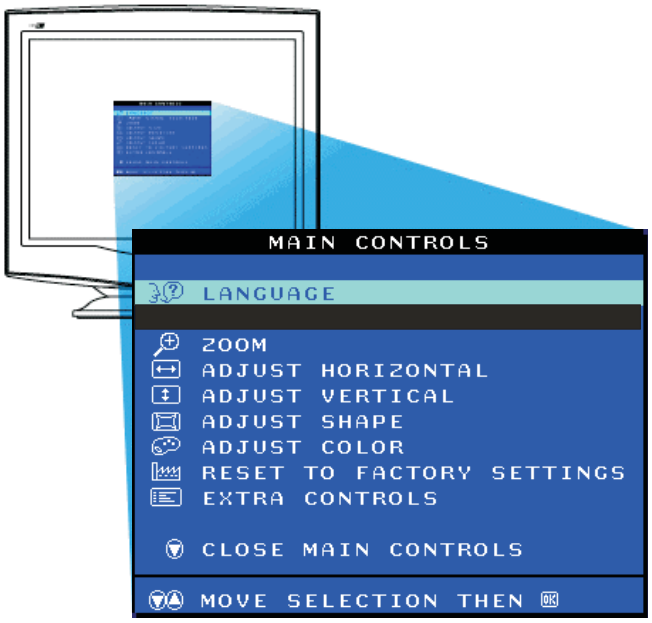
OK button which when pressed will take you to the OSD controls

Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.

UP and DOWN buttons are used when adjusting the OSD of your monitor

Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.

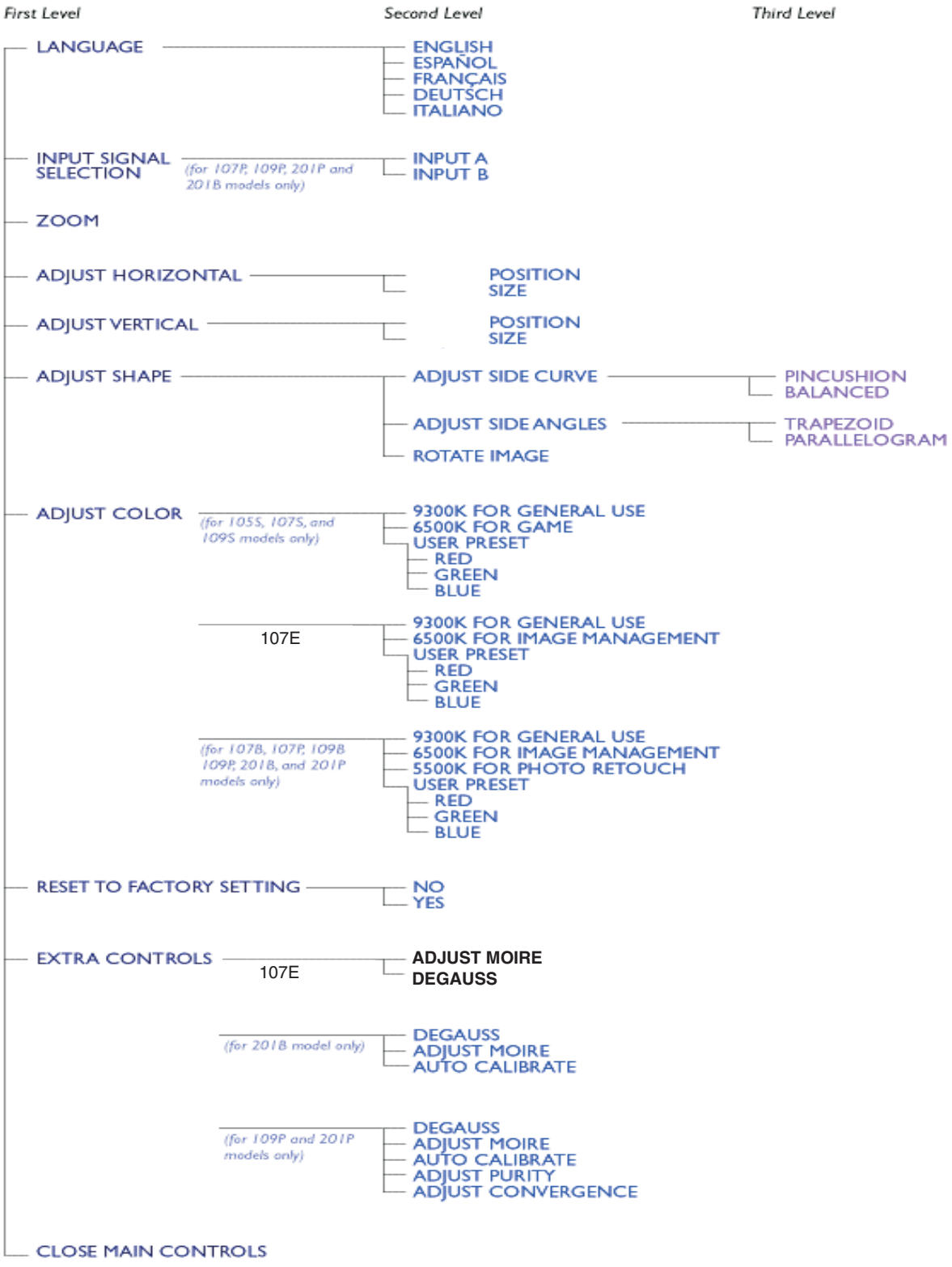
LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.



OSD menu tree

The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.



* Specifications are subject to change without prior notice.

OSD Adjustments

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The OSD Controls

BRIGHTNESS

To adjust your screen's brightness, follow the steps below. Brightness is the overall intensity of the light coming from the screen. A 50% brightness is recommended.

1) Press the ◀ or ▶ button on the monitor. The BRIGHTNESS window appears.

2) Press the ◀ or ▶ button to adjust the brightness.

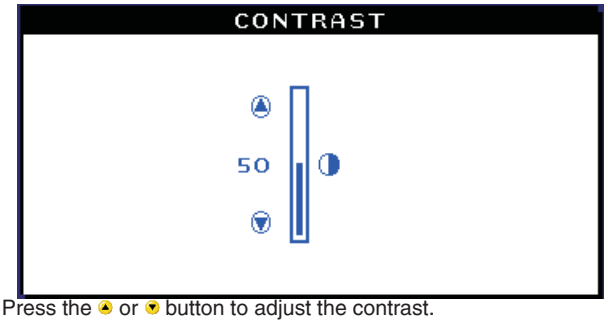
3) When the brightness is adjusted to the level desired, stop pressing the ◀ or ▶ button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

Smart Help After the BRIGHTNESS window has disappeared, to continue to the CONTRAST window, follow the steps under CONTRAST.

CONTRAST

To adjust your screen's contrast, follow the steps bellow. Contrast is the difference between the light and dark areas on the screen. A 100% contrast is recommended.

1) Press the ▲ or ▼ button on the monitor. The CONTRAST window appears.



2) Press the ▲ or ▼ button to adjust the contrast.

3) When the contrast is adjusted to the level desired, stop pressing the ▲ or ▼ button and after three seconds the CONTRAST window will disappear with the new adjustment saved.

Smart Help After the CONTRAST window has disappeared, to continue to the MAIN CONTROLS, follow the steps under LANGUAGE

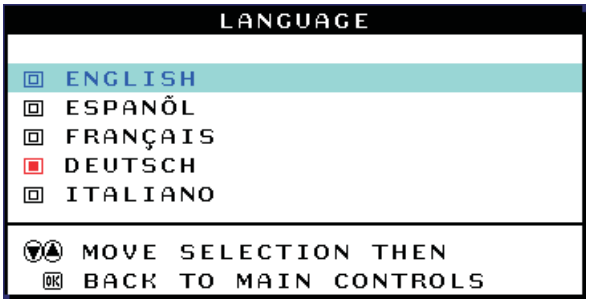
LANGUAGE

The ON SCREEN DISPLAY shows its settings in one of five languages. The default is English, but you can select French, Spanish, German, or Italian.

1) Press the OK button on the monitor. The MAIN CONTROLS window appears. LANGUAGE should be highlighted.

2) Press the OK button again. The LANGUAGE window appears.

3) Press the ▲ or ▼ button until the desired language is highlighted.



4) Press the OK button to confirm your selection and return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted...

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to INPUT SIGNAL SELECTION, press the ▲ button until INPUT SIGNAL SELECTION is highlighted. Next, follow steps 3 - 5 under INPUT SIGNAL SELECTION.

. . . to exit completely, press the OK button

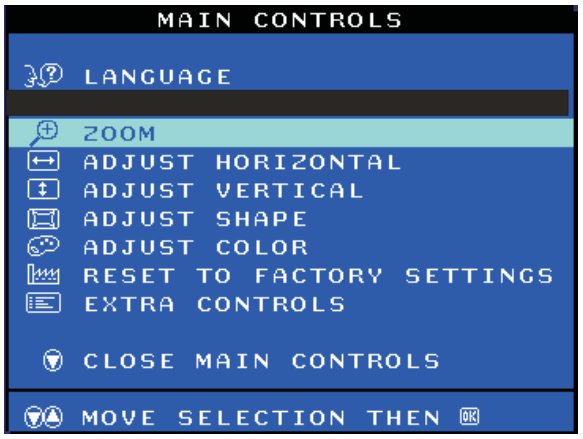
OSD Adjustments (Continued)

ZOOM

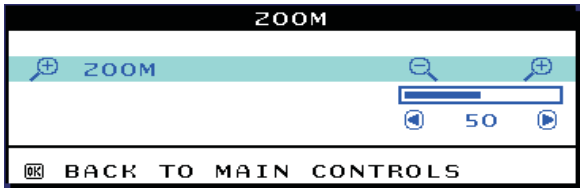
ZOOM increases or decreases the size of the images on your screen. To adjust the ZOOM follow the steps below.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ZOOM is highlighted.



3) Press the button. The ZOOM window appears.



4) Press the or button to adjust ZOOM.

5) Press the button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST HORIZONTAL, press the button until ADJUST HORIZONTAL is highlighted. Next, follow steps 3 - 7 under ADJUST HORIZONTAL.

. . . to exit completely, press the button

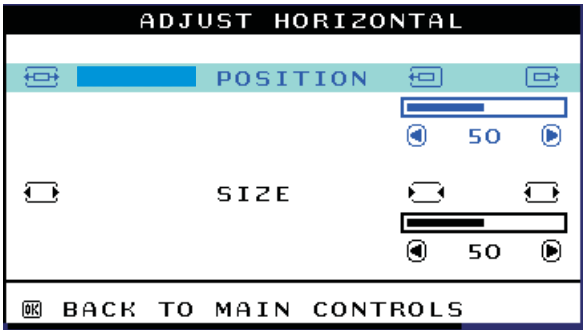
ADJUST HORIZONTAL

ADJUST POSITION under ADJUST HORIZONTAL shifts the image on your screen either to the left or right. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST HORIZONTAL expands or controls the image on your screen, pushing it out toward the left and right sides or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

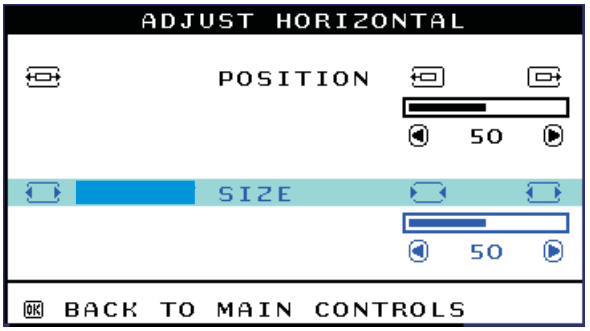
2) Press the button until ADJUST HORIZONTAL is highlighted.

3) Press the button. The ADJUST HORIZONTAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image to the left or right.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the to highlight ADJUST SIZE.



6) To adjust the horizontal size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST VERTICAL, press the button until ADJUST VERTICAL is highlighted. Next, start with step 3 under ADJUST VERTICAL and follow the directions.

. . . to exit completely, press the button

ADJUST VERTICAL

ADJUST POSITION under ADJUST VERTICAL shifts the image on your screen either up or down. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST VERTICAL expands or controls the image on your screen, pushing it out toward the top or bottom or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

OSD Adjustments (Continued)

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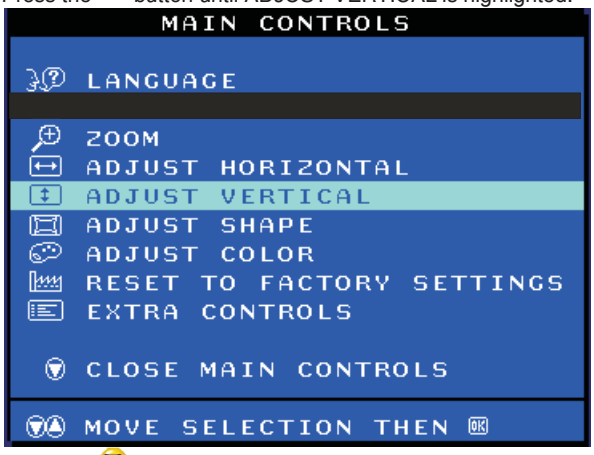
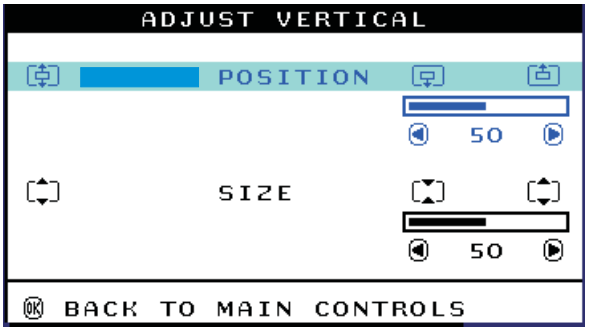
2) Press the button until ADJUST VERTICAL is highlighted.

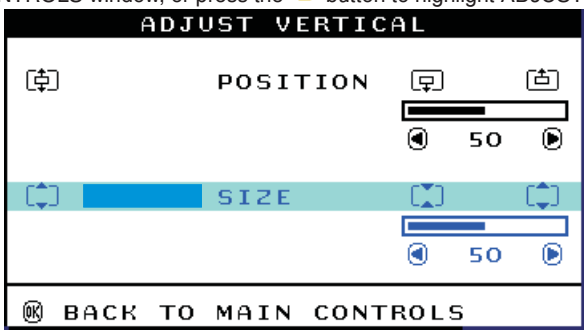


3) Press the button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image up or down.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the button to highlight ADJUST SIZE.



6) To adjust the vertical size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST SHAPE, press the button until ADJUST SHAPE is highlighted. Next, start with step 3 under ADJUST SHAPE and follow the directions.

. . . to exit completely, press the button

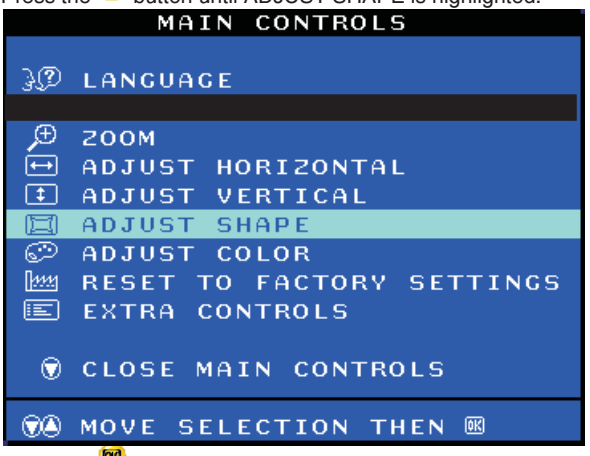
ADJUST SHAPE

ADJUST SIDE CURVE

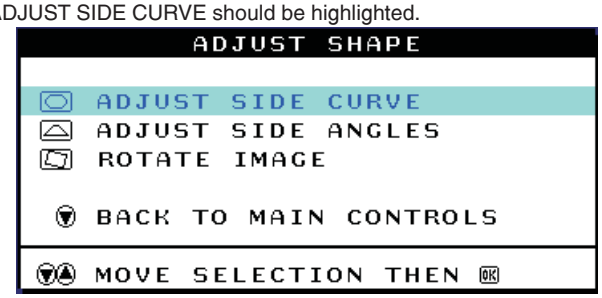
ADJUST SIDE CURVE under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use these features only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

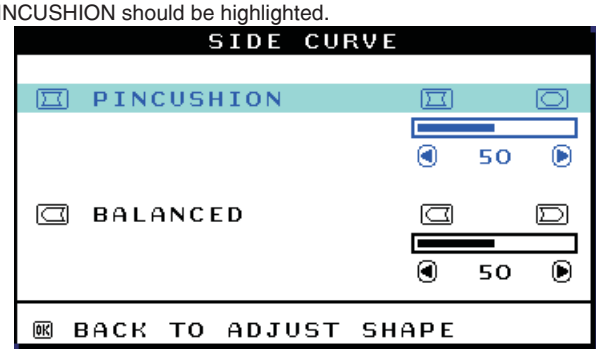
2) Press the button until ADJUST SHAPE is highlighted.



3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

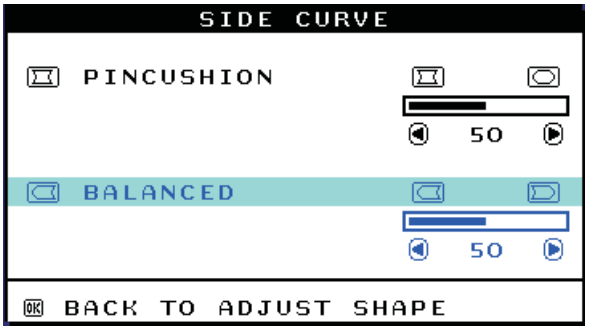


4) Press the button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



5) To adjust the pincushion, press the or button.

6) When the pincushion is adjusted, press the button to highlight BALANCED or press the button to return to the ADJUST SHAPE window.



7) To adjust the balanced pincushion, press the or button.

8) When the balanced pincushion is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

9) Press the button to return to the MAIN CONTROLS window, or press the button until ADJUST SIDE ANGLES is highlighted.

Back Forward

OSD Adjustments (Continued)

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ADJUST SIDE ANGLES, start with step 5 under ADJUST SIDE ANGLES and follow the directions.

...to exit completely, press the button twice.

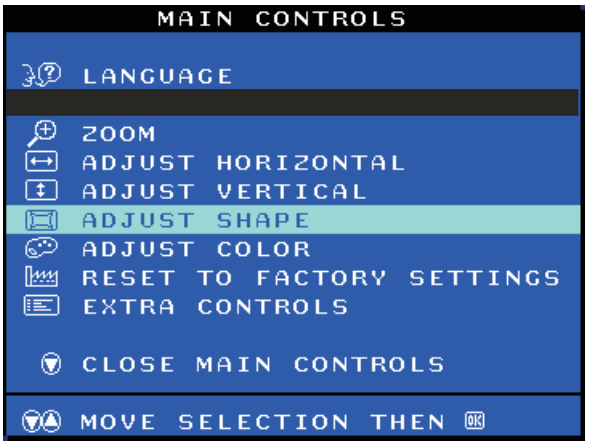
...to adjust only the BALANCED pincushion, follow steps 1 - 4 above, then press the button, and follow steps 7 - 9.

ADJUST SIDE ANGLES

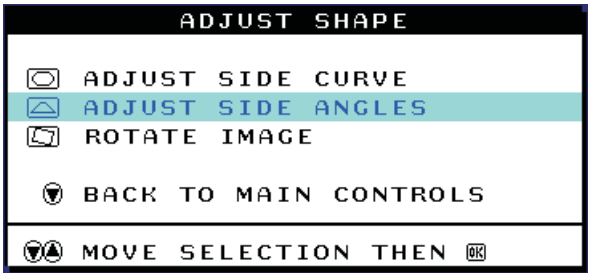
ADJUST SIDE ANGLES under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are TRAPEZOID and PARALLELOGRAM. Note: use these features only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.

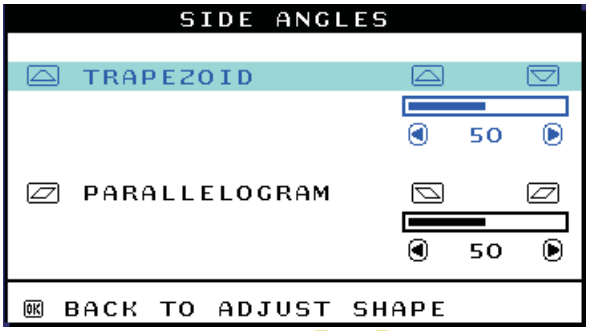


3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.



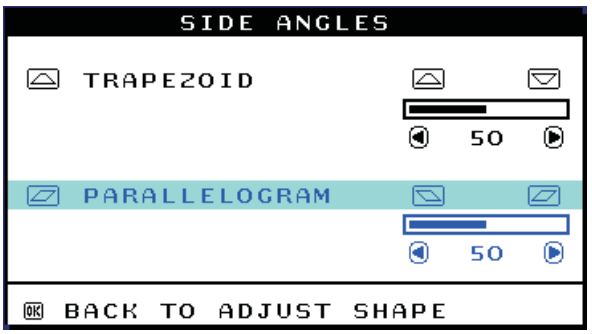
4) Press the button to highlight ADJUST SIDE ANGLES.

5) Press the button. The SIDE ANGLES window appears. TRAPEZOID should be highlighted.



6) To adjust the trapezoid, press the or button.

7) When the trapezoid is adjusted, press the button to highlight PARALLELOGRAM or press the button to return to the ADJUST SHAPE window.



8) To adjust the parallelogram, press the or button.

9) When the parallelogram is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

10) Press the button to return to the MAIN CONTROLS window, or press the button until ROTATE IMAGE is highlighted.

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ROTATE IMAGE, start with step 5 under ROTATE IMAGE and follow the directions.

...to exit completely, press the button twice.

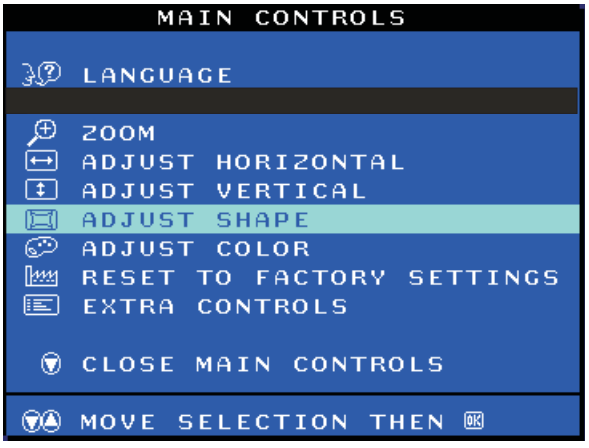
...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the button, and follow steps 7 -9

ROTATE IMAGE

ROTATE IMAGE under ADJUST SHAPE allows you to adjust one of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use this feature only when the picture is not square.

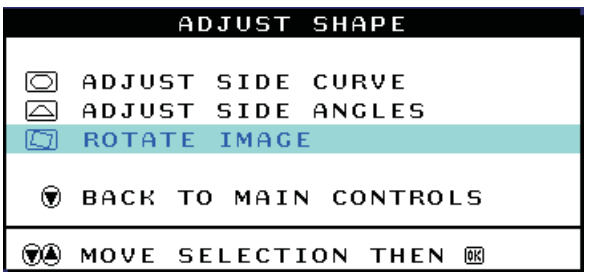
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.



3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

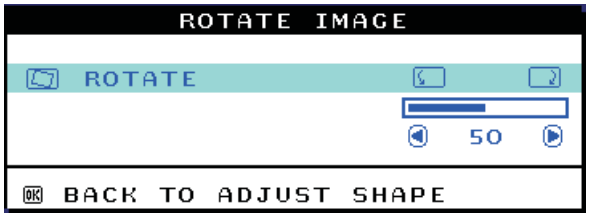
4) Press the arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

Go to cover page

5) Press the button. The ROTATE IMAGE window appears. ROTATE should be highlighted.



6) To adjust the rotation, press the or button.

7) When the rotation is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN CONTROLS should be highlighted.

8) Press the button to return to MAIN CONTROLS.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST COLOR, press the button until ADJUST COLOR is highlighted. Next, start with step 3 under ADJUST COLOR and follow the directions.

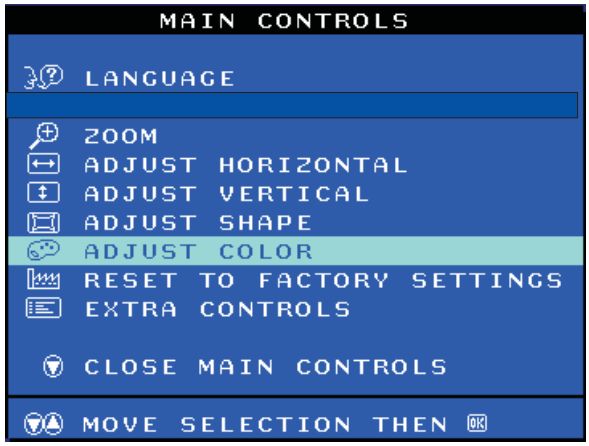
...to exit completely, press the button twice.

ADJUST COLOR

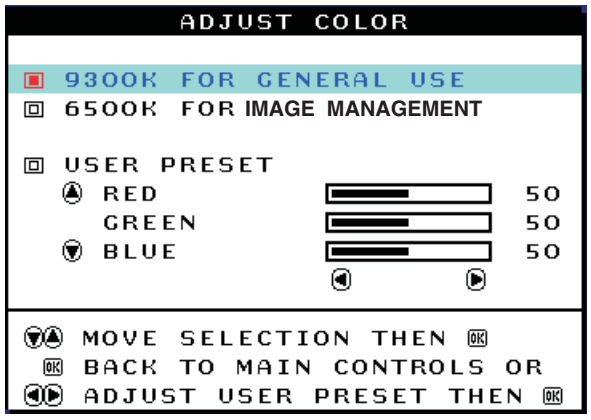
Your monitor has two preset options you can choose from. The first option is for GENERAL USE, which is fine for most applications. The second option is for GAMES, which is for playing computer games. When you select one of these options, the monitor automatically adjusts itself to that option. There is also a third option, USER PRESET, which allows you to adjust the colors on your screen to a setting you desire.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST COLOR is highlighted.

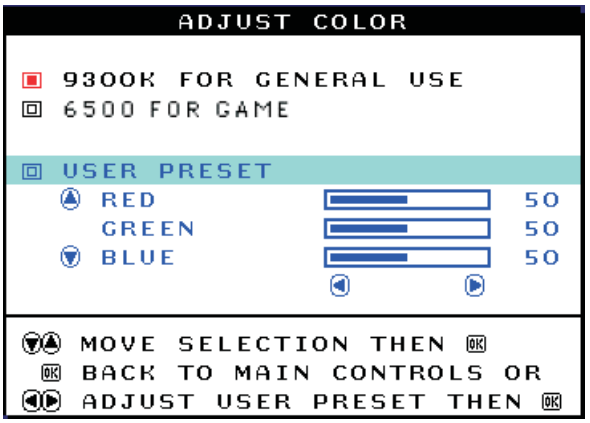


3) Press the button. The ADJUST COLOR window appears.



4) Press the or button to highlight 9300K for GENERAL USE, 6500K for GAMES, or USER PRESET.

5) Once you have highlighted GENERAL USE or GAMES, press the button to confirm you selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.



6a) If USER PRESET is highlighted, press the button to highlight RED. Next, press the LEFT CURSOR or RIGHT CURSOR button to adjust the color red.

6b) When finished with RED, press the button to highlight GREEN. Next, press the or button to adjust the color green.

6c) When finished GREEN, press the button to highlight BLUE. Next, press the or button to adjust the color blue.

6d) When all adjustments are complete, press the button to confirm your adjustments and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS. . .

. . . to continue to RESET TO FACTORY SETTINGS, press the button until RESET TO FACTORY SETTINGS is highlighted. Next, start with step 3 under RESET TO FACTORY SETTINGS.

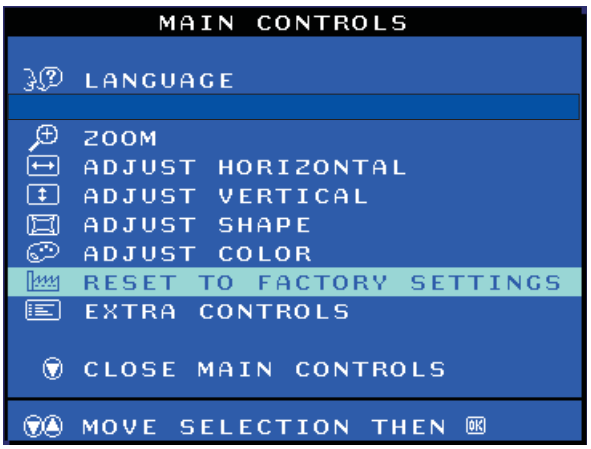
. . . to exit completely, press the button.

RESET TO FACTORY SETTINGS

RESET TO FACTORY SETTINGS returns everything in all the windows to factory presets.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

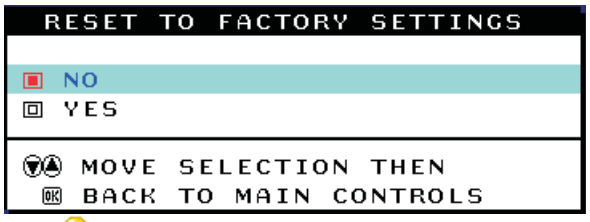
2) Press the button until RESET TO FACTORY SETTINGS is highlighted.



3) Press the button. The RESET TO FACTORY SETTINGS window appears.

OSD Adjustments (Continued)

4) Press the ▲ or ▼ button to select YES or NO. NO is the default. YES returns all settings to their original factory adjustments.



5) Press the OK button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to EXTRA CONTROLS, press the ▲ button until EXTRA CONTROLS is highlighted. Next, start with step 3 under EXTRA CONTROLS.

. . . to exit completely, press the OK button.

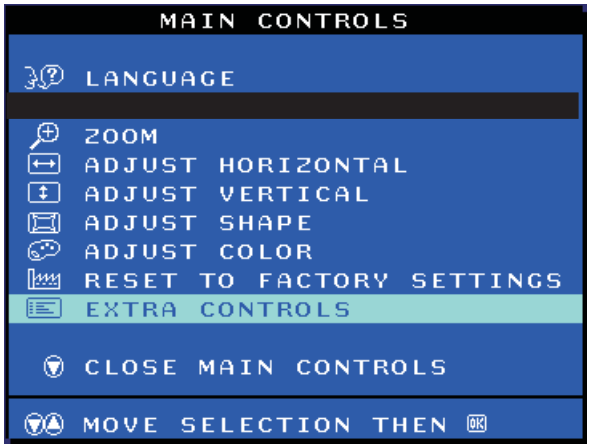
EXTRA CONTROLS

ADJUST MOIRE

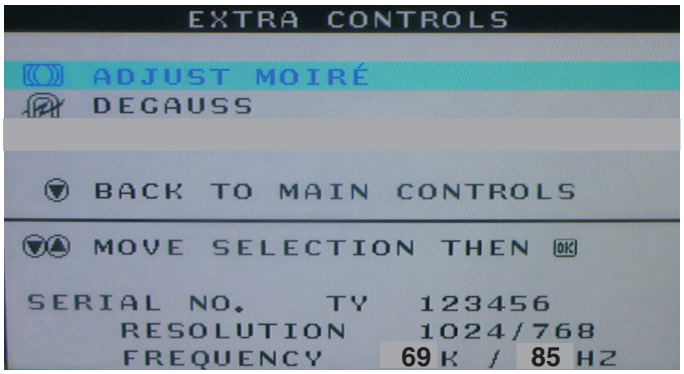
EXTRA CONTROLS is a set of three features, including ADJUST MOIRE. Moire is a fringe pattern arising from the interference between two superimposed line patterns. To adjust your moire, follow the steps below. Note: Use only if necessary. By activating ADJUST MOIRE, sharpness can be affected.

1) Press the OK button on the monitor. The MAIN CONTROLS window appears.

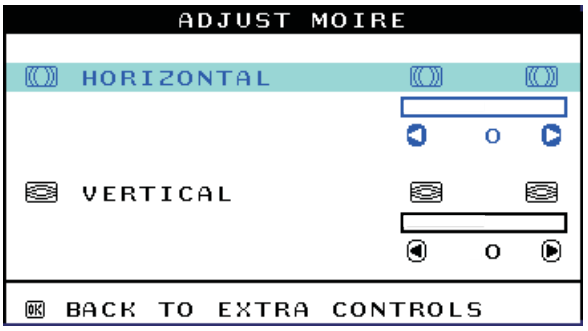
2) Press the DOWN CURSOR button until EXTRA CONTROLS is highlighted.



3) Press the OK button. The EXTRA CONTROLS window appears. will ADJUST MOIRE will be highlighted.

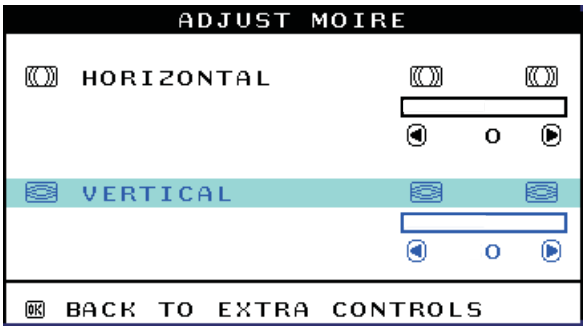


4) Press the OK button. The ADJUST MOIRE window appears. HORIZONTAL will be highlighted.



5) To adjust the horizontal moire, press the ◄ or ► button.

6) When the horizontal moire is adjusted, press the ▼ button to highlight VERTICAL.



7) To adjust the vertical moire, press the ◄ or ► button.

8) When the vertical moire is adjusted, press the OK button to return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to DEGAUSS, press the ▲ button until DEGAUSS is highlighted. Next, start with step 3 under EXTRA CONTROLS, DEGAUSS.

. . . to exit completely, press the OK button.

OSD Adjustments (Continued), Troubleshooting

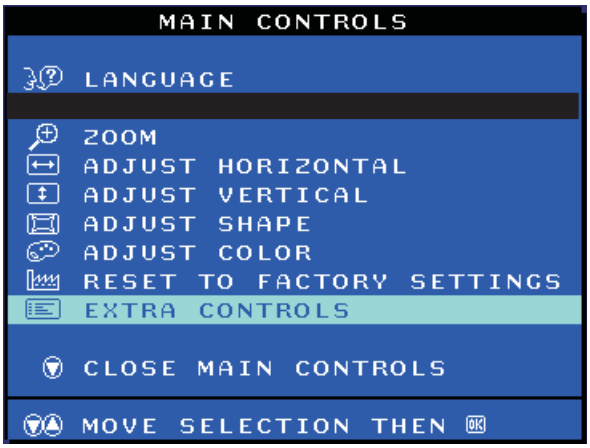
Go to cover page

DEGAUSS

EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

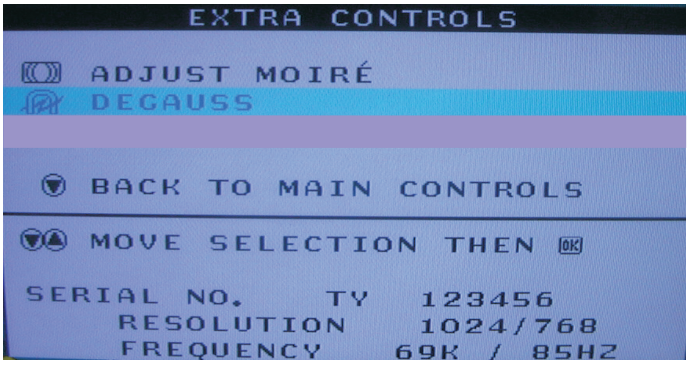
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until EXTRA CONTROLS is highlighted.



3) Press the button. The EXTRA CONTROLS window appears. ADJUST MOIRE will be highlighted.

4) Press the button until DEGAUSS is highlighted.

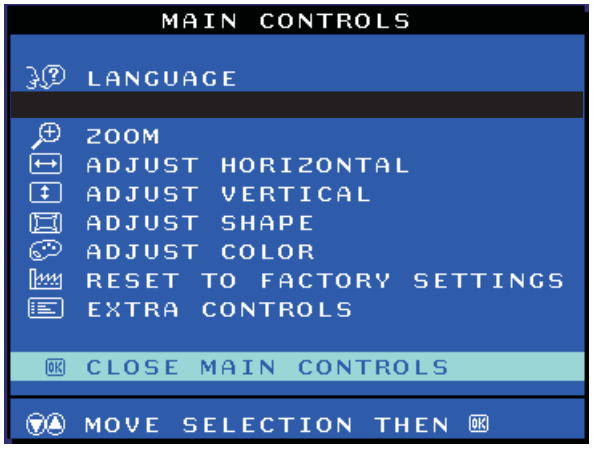


5) To degauss your screen, press the button. Your screen will be degaussed, then the MAIN CONTROLS window will reappear. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to exit completely, press the button.

CLOSE MAIN CONTROLS



Monitor Specific Troubleshooting

Self-Test Feature Check (STFC)

Your monitor provides a self-test feature that allows you to check whether your monitor is functioning properly. If your monitor and computer are properly connected but the monitor screen remains dark, run the monitor self-test by performing the following steps:

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

If the monitor is functioning properly, you will see a OSD message as shown in the following illustration:

This box also appears during normal system operation if the video cable becomes disconnected or damaged. This box will remain on for one minute, go off five seconds, then on for one minute, and will repeat cycle.

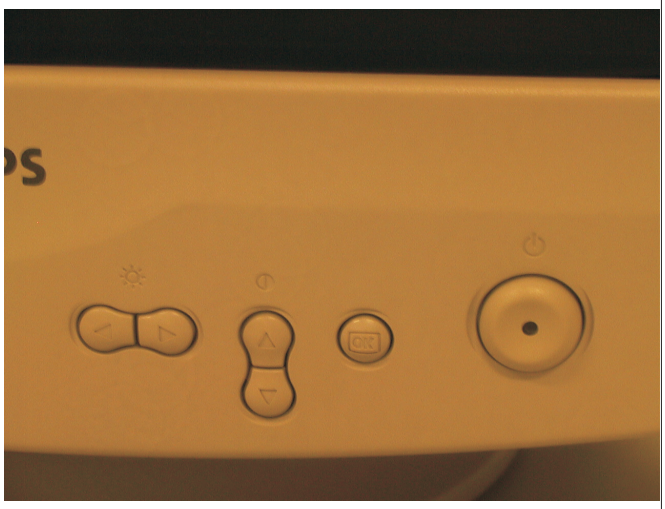
1. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
2. While in self-test mode, the LED remains green and the pattern remains on and stationary.

If your monitor screen still remains dark after you use the previous procedure, check your video controller and computer system; your monitor is functioning properly.

NO SIGNAL INPUT

If there is something wrong with the input signal, a message appears on the screen although the power indicator LED is still on. The message may indicate that the monitor is NO SIGNAL INPUT or that you need to check the signal cable.

Front Control



Power button switches your monitor on.

OK button which when pressed will take you to the OSD controls

Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.

UP and DOWN buttons are used when adjusting the OSD of your monitor

Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.

LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

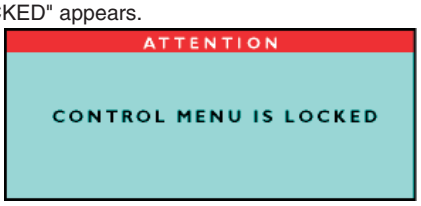
OSD Lock

OSD lock is a feature which disables the OSD controls. It can be used when the monitor is set up for demonstration purposes or when adjustment of the OSD is not desirable.

Switch on OSD lock feature:

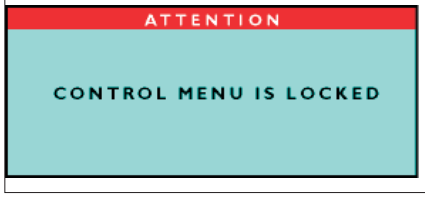
Press and hold the button continuously for 15 seconds.

Release the button when the message "CONTROL MENU IS LOCKED" appears.



Switch off OSD lock feature:

Press and hold the button continuously for 15 seconds or until the message window "CONTROL MENU IS LOCKED" disappears, and "MAIN CONTROLS" appears.

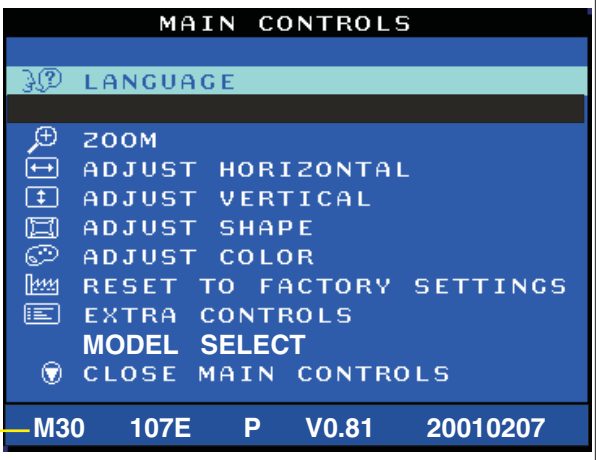


Default setting of MODEL SELECT (Do not change it.)

MODEL SELECT
107E 71K
107S 71K
107T 71K CPT HIT PHL
107T 71K SAMSUNG
107S 86K
SWDDC
Disable DDC1
LF
LF OSD CONTROL

To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press " " and " " simultaneously on the front control panel,then press " ",wait till the OSD menu with characters M 30 107E P V0.81 20010207 (below OSD menu)" come on the screen of monitor.



3. If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
4. Using " " : to select OSD menu.
5. Using " " : to increase or decrease the setting.
6. Using " " to access/confirm the selection.

To leave factory mode

7. After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

To access BURN IN mode

First of all, monitor displays an image.

1. Disconnect the video cable (interface cable).
2. Turn off monitor
3. Press " " and " " simultaneously on the front control panel,then the BURN IN mode comes on the screen of monitor as below.

50 seconds around

5 seconds around

repeatedly

4. **Reconnect the video cable, then return to normal image.**

SERVICE MODE (Indication-Factory mode)

00010: stands for
1. using 10 hours already.
2. turn on/off 10 times.
3. using several hours + turn on/off monitor.

Warning and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ⚠ .

2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).

3. **ESD**
All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that saferty goggles be worn when replacing the picture tube.

7. When making adjustments,use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the defleciton unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.

10. After repair, the wiring should be fastened in place with the cable clamps.

11. All units that are returned for service or repair must pass the original manufactures safety tests.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
   - Mode : 640 * 480 (31.5kHz / 60Hz)
   - Signal pattern : grey scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

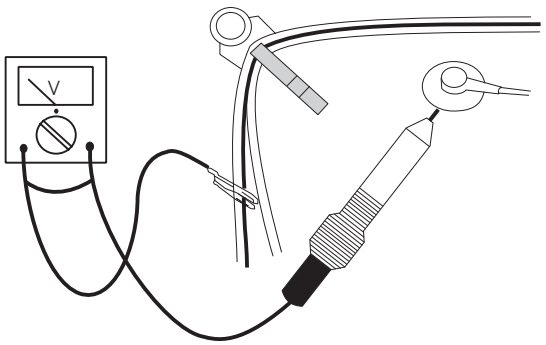


Fig.1

Mechanical Instructions

0. General
To be able to perform measurements and repairs on the "circuit boards", these unit should placed in the service position first.
1.Remove the rear cover
-Remove right and left lib (screw cover) on the back cover as shown in Fig. 1.
-Remove 4 screws as shown in Fig. 2.
-Remove back cover as shown in Fig. 3.

2. Remove pedestal as shown in Fig. 4.

3. Video panel
- Disconnect the wire between metal shield of Video panel and CRT neck as shown in Fig. 5.
- Disconnect the CRT ground "1703" from Video panel.

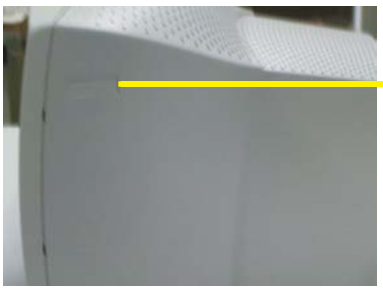


Fig. 1

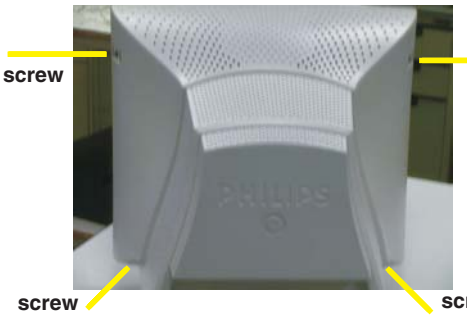


Fig. 2

Fig. 3

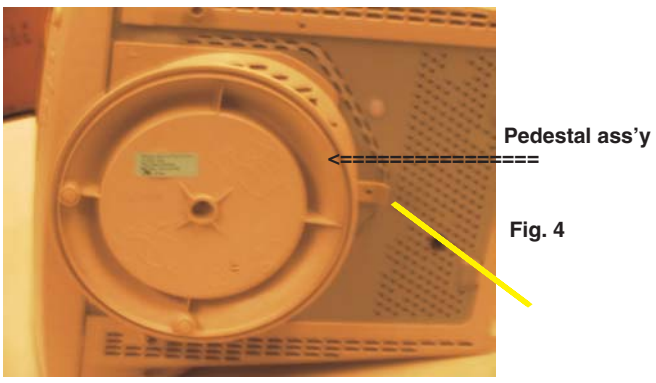


Fig. 4

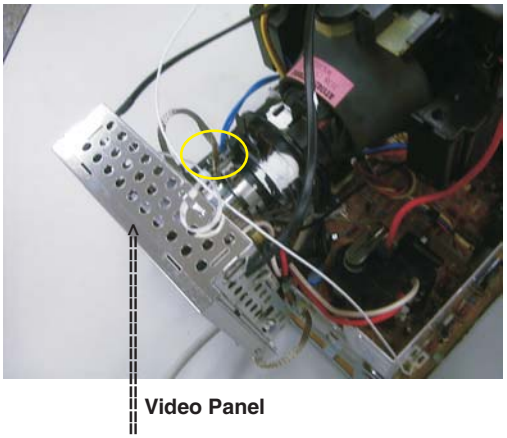


Fig. 5

Mechanical Instructions

4. Main panel with Bottom Tray

- Disconnect the degaussing coil (1113)from Main panel as shown in Fig. 6.
- Remove the video panel from CRT neck.
- Remove the "screw" of I/F cable from Main panel, grounding screw , wire as shown in Fig. 7..
- Disconnect the CRT ground "1703" from Video panel.
- Disconnect the Hi-Pot cap from CRT as shown in Fig. 8..
- Disconnect yoke wire from "1601"(on Main Panel).
- Disconnect concellation connector "1402" (on Main Panel).
- Disconnect connector "1604" and all the wires as shown in Fig. 9.
- Disconnect connector of "1802".
- Remove main panel with bottom tray as shown in Fig. 10 to Fig. 14.

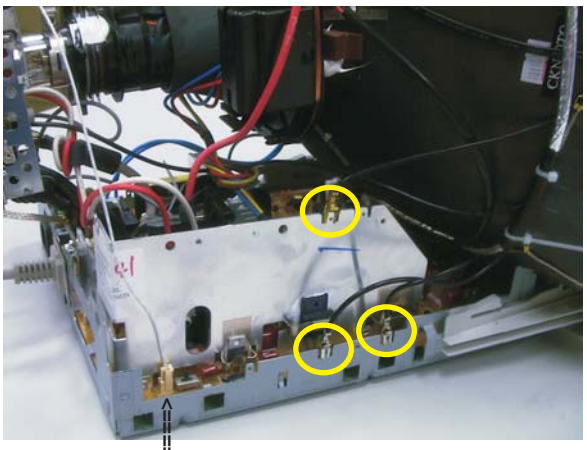


Fig. 9

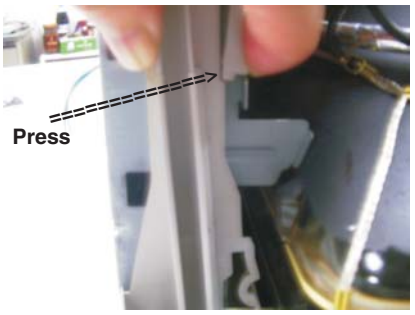


Fig. 10

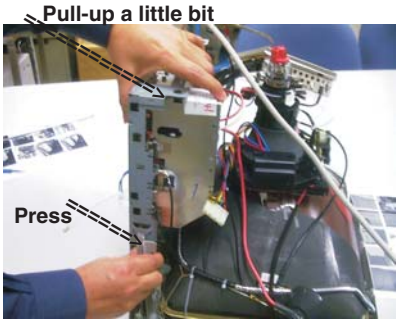


Fig. 11

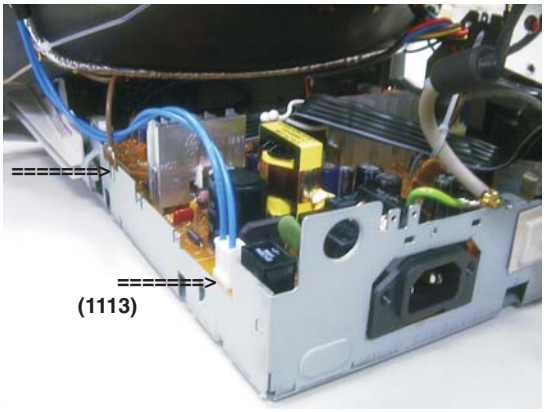


Fig. 6

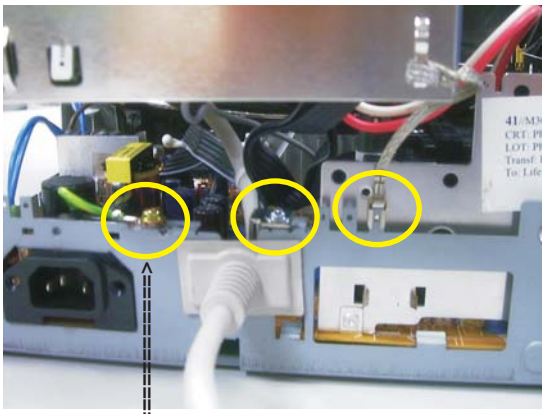


Fig. 7

Fig. 12

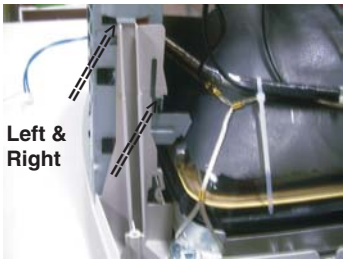


Fig. 13

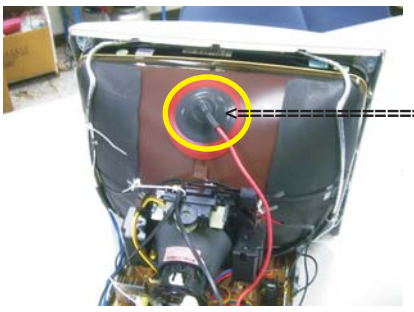


Fig. 8

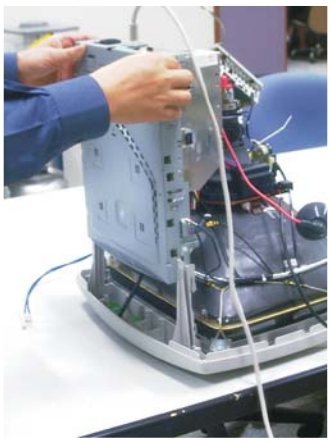


Fig. 14

5. How to remove Main Panel (Chassis)

After remove "Main panel with bottom tray":
- Remove a screw from back of bottom tray as shown in Fig. 15.
- Remove Interface cable from bottom tray as shown in Fig. 16.
- Remove a screw from Main panel as shown in Fig. 16.
- Remove 2 screws from Main panel as shown in Fig. 17.
- Remove a screw from Main panel as shown in Fig. 18.
- Remove Main panel from bottom tray.

6. How to remove Front Control Panel (Chassis)

Step 1 : Remove Chin assembly
- Release 6 plastic claws as shown in Fig. 19 &20.
- Remove Chin ass'y as shown in Fig. 21.

Step 2 : Remove Front control panel
- Release 3 plastic claws as shown in Fig. 21.
- Remove Front control panel from Chin ass'y as shown in Fig. 21.

Fig. 15

Rear view of Bottom Tray

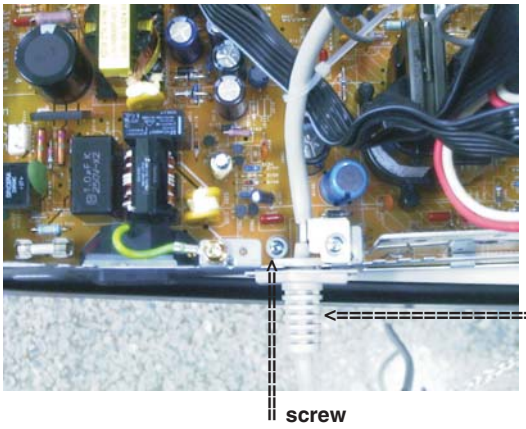


Fig. 16

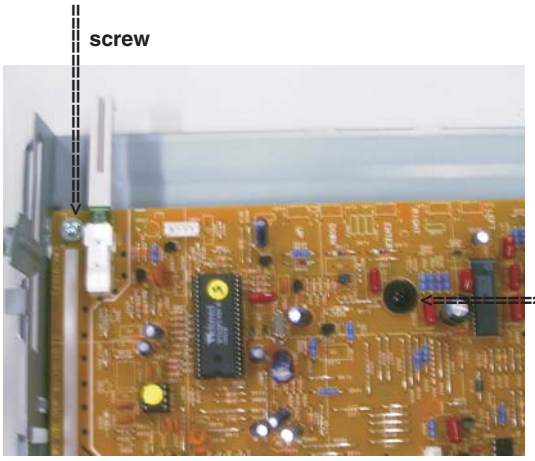


Fig. 17

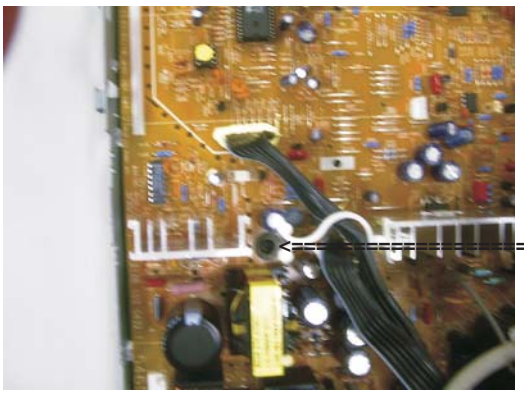


Fig. 18

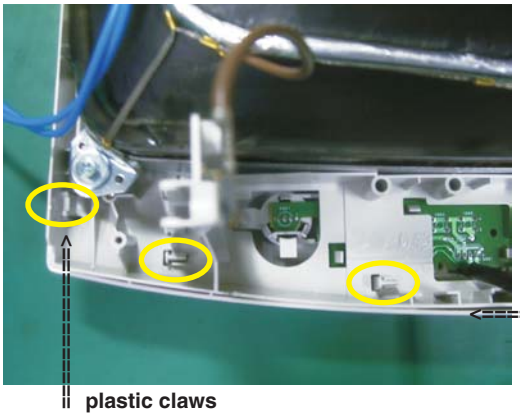


Fig. 19

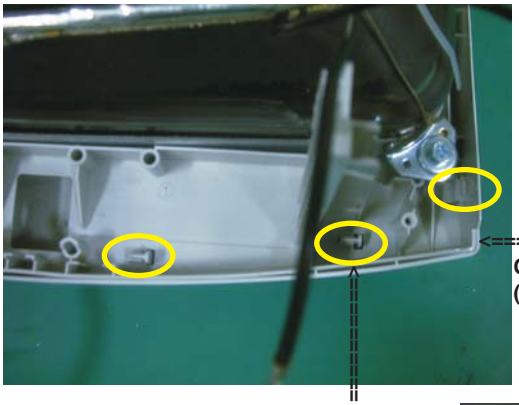


Fig. 20

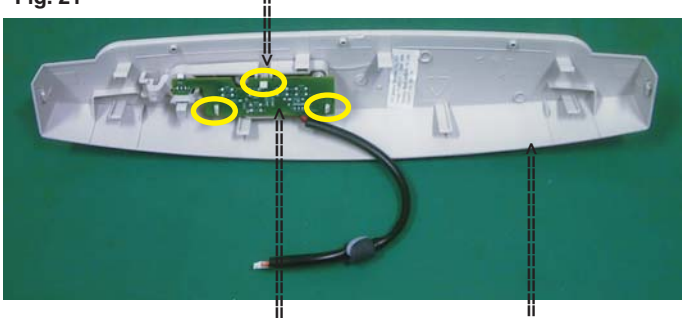


Fig. 21

Mechanical Instructions

7. SERVICE POSITION

Reconnect connectors, some wires and panels (chassis), service position can be available for DC/AC measurement as shown in Fig. 24.

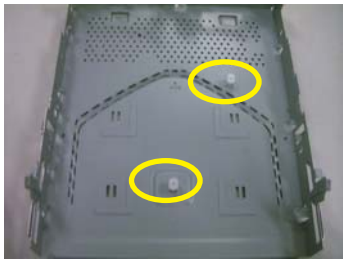


Fig. 22
(plastic on bottom tray)

Fig. 23
(copper track side view on Main panel)

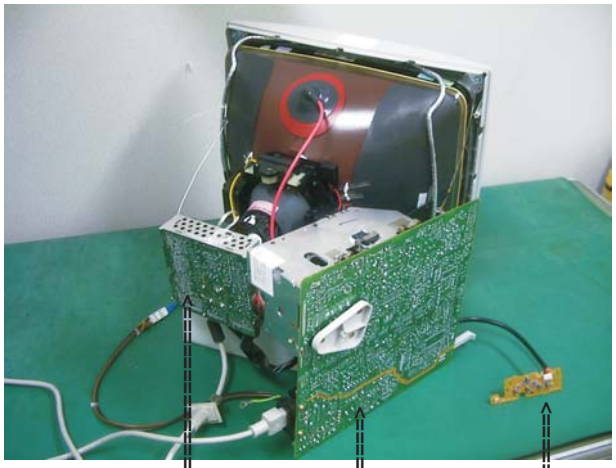


Fig. 24 SERVICE POSITION

Wiring Diagram

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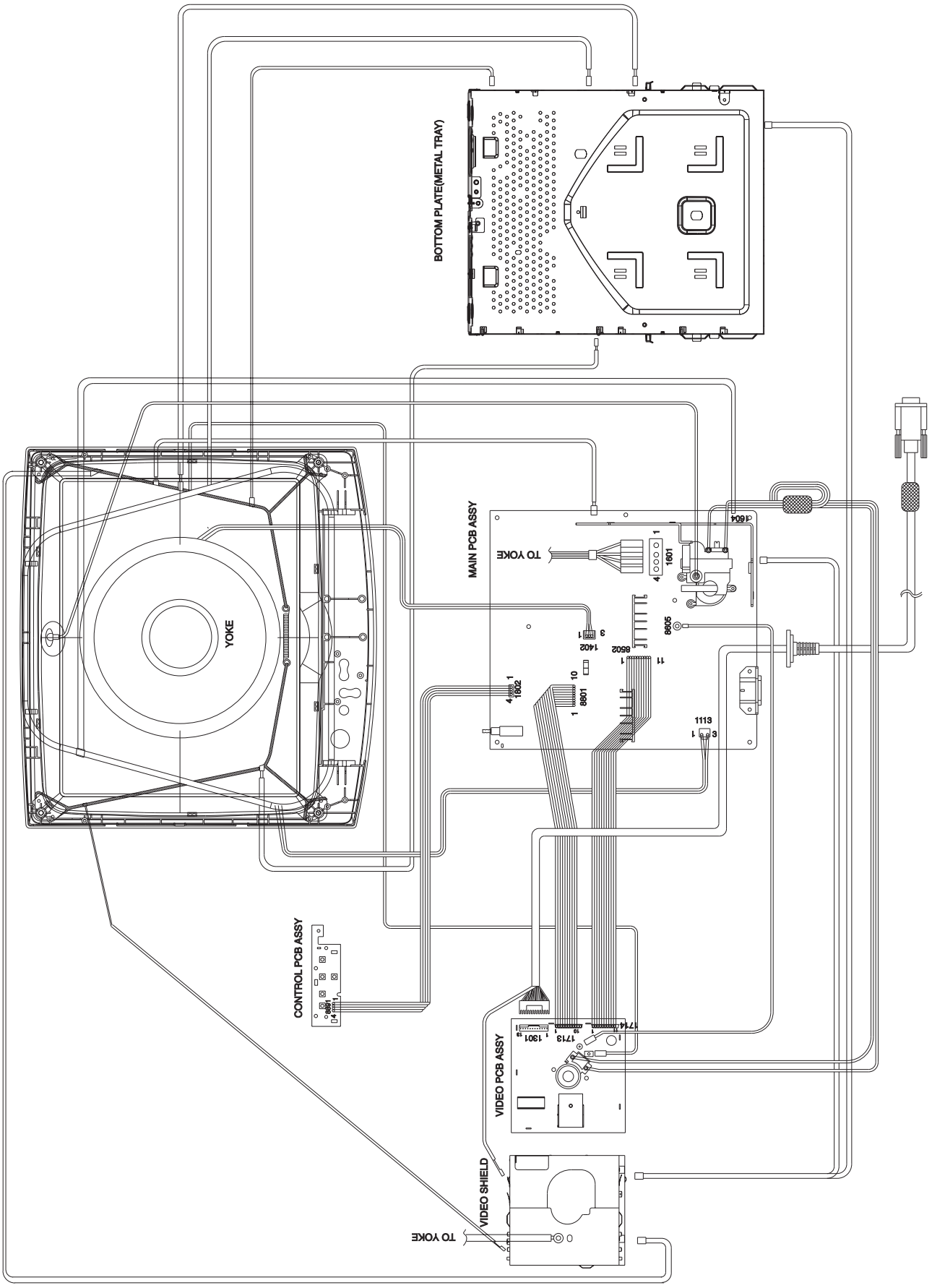

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Hex Data of DDC2B

1.3.7. Display data channel : DDC2B

****
M30 107E2 70K PHILIPS Tube EDID log file
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : E004 (HEX.)
- ID Serial Number : 1E240 (HEX.)
- Week of Manufacture : 6
- Year of Manufacture : 2001

EDID Version, Revision
- Version : 1
- Revision : 1

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.000V (0.70Vpp)
  without Blank-to-Black Setup
  Separate Sync
  without Composite Sync
  without Sync on Green
  no Serration required
- Maximum H Image Size : 31
- Maximum V Image Size : 23
- Display Transfer Characteristic (gamma) : 2.87
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display

Color Characteristics
- Red X coordinate : 0.62
- Red Y coordinate : 0.345
- Green X coordinate : 0.29
- Green Y coordinate : 0.61
- Blue X coordinate : 0.155
- Blue Y coordinate : 0.065
- White X coordinate : 0.283
- White Y coordinate : 0.297

Established Timings
- Established Timings I :
  720 x 400 @70Hz (IBM,VGA)
  640 x 480 @60Hz (IBM,VGA)
  640 x 480 @72Hz (VESA)
  640 x 480 @75Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II :
  800 x 600 @72Hz (VESA)
  800 x 600 @75Hz (VESA)
  832 x 624 @75Hz (Apple,Mac II)
  1024 x 768 @60Hz (VESA)
  1024 x 768 @70Hz (VESA)
  1024 x 768 @75Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification #1
- Horizontal active pixels : 640
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #2
- Horizontal active pixels : 800
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #3
- Horizontal active pixels : 1024
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #4
- Horizontal active pixels : 1280
- Aspect Ratio : 5:4
- Refresh Rate : 60

Standard Timing Identification #5
- Horizontal active pixels : 640
- Aspect Ratio : 4:3
- Refresh Rate : 100

Standard Timing Identification #6
- Horizontal active pixels : 800
- Aspect Ratio : 4:3
- Refresh Rate : 100

Standard Timing Identification #7
- Horizontal active pixels : 1280
- Aspect Ratio : 4:3
- Refresh Rate : 60

Standard Timing Identification #8
- Horizontal active pixels : 1152
- Aspect Ratio : 4:3
- Refresh Rate : 75

Detailed Timing #1
- Pixel Clock (MHz) : 25.18
- H Active (pixels) : 640
- H Blanking (pixels) : 160
- V Active (lines) : 350
- V Blanking (lines) : 99
- H Sync Offset (F Porch) (pixels) : 16
- H Sync Pulse Width (pixels) : 96
- V Sync Offset (F Porch) (lines) : 37
- V Sync Pulse Width (lines) : 2
- H Image Size (mm) : 306
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Negative Vertical Sync.
  : Positive Horizontal Sync.

Monitor Descriptor #2
- Serial Number : TY 123456

Monitor Descriptor #3
- Monitor Name : PHILIPS 107E

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 50
- Max. Vt rate Hz : 160
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 70
- Max. Supported Pixel : 110

Extension Flag : 0

Check sum : 1A (HEX.)

Hex Data of DDC2B (Continued)

Monitor Descriptor #2
Serial Number : TY 123456

Monitor Descriptor #3
Monitor Name : PHILIPS 107E

Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 50
Max. Vt rate Hz : 160
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 70
Max. Supported Pixel : 110

Extension Flag : 0

Check sum : 1A (HEX.)

****

M30 107E2 70K PHILIPS Tube EDID data (128 bytes)

****

0: 00	1: ff	2: ff	3: ff	4: ff	5: ff	6: ff	7: 00
8: 41	9: 0c	10: 04	11: e0	12: 40	13: e2	14: 01	15: 00
16: 06	17: 0b	18: 01	19: 01	20: 68	21: 1f	22: 17	23: bb
24: e8	25: d5	26: f8	27: 9e	28: 58	29: 4a	30: 9c	31: 27
32: 10	33: 48	34: 4c	35: ad	36: ee	37: 00	38: 31	39: 59
40: 45	41: 59	42: 61	43: 59	44: 81	45: 80	46: 31	47: 68
48: 45	49: 68	50: 81	51: 40	52: 71	53: 4f	54: d6	55: 09
56: 80	57: a0	58: 20	59: 5e	60: 63	61: 10	62: 10	63: 60
64: 52	65: 08	66: 32	67: e6	68: 10	69: 00	70: 00	71: 1a
72: 00	73: 00	74: 00	75: ff	76: 00	77: 20	78: 54	79: 59
80: 20	81: 20	82: 31	83: 32	84: 33	85: 34	86: 35	87: 36
88: 0a	89: 20	90: 00	91: 00	92: 00	93: fc	94: 00	95: 50
96: 48	97: 49	98: 4c	99: 49	100: 50	101: 53	102: 20	103: 31
104: 30	105: 37	106: 45	107: 0a	108: 00	109: 00	110: 00	111: fd
112: 00	113: 32	114: a0	115: 1e	116: 46	117: 0b	118: 00	119: 0a
120: 20	121: 20	122: 20	123: 20	124: 20	125: 20	126: 00	127: 1a

Address 78&79 factory code :

Brazil	HC(48h,43h)	Chungli	TY(54h,59h)
Delta	GK(47h,4Bh)	Juarez	TA(59h,41h)
Shenzshen	CX(43h,58h) same as Dongguan		
Suzhou	BZ(42h,5Ah)	Szombathely	HD(48h,44h)

Serial no.address:82,83,84,85,86,87,88,89

Hex Data of DDC2B (Continued)

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```
**********************************************************************
M30 107E2 70K CPT Tube EDID log file
**********************************************************************

Vendor/Product Identification

        ID Manufacturer Name        : PHL
        ID Product Code             : E004 (HEX.)
        ID Serial Number            : 1E240 (HEX.)
        Week of Manufacture         : 6
        Year of Manufacture         : 2001

EDID Version, Revision
        Version                     : 1
        Revision                    : 1

Basic Display Parameters/Features
        Video Input Definition      : Analog Video Input
                                      0.700V/0.000V (0.70Vpp)
                                      without Blank-to-Black
                                      Setup
                                      Separate Sync
                                      without Composite Sync
                                      without Sync on Green
                                      no Serration required

        Maximum H Image Size        : 31
        Maximum V Image Size        : 23

        Display Transfer Characteristic     : 2.77
                (gamma)

        Feature Support (DPMS)              : Standby
                                              Suspend
                                              Active Off

        Display Type                : RGB color display

Color Characteristics

        Red   X coordinate                  : 0.631
        Red   Y coordinate                  : 0.329
        Green X coordinate                  : 0.276
        Green Y coordinate                  : 0.6
        Blue  X coordinate                  : 0.143
        Blue  Y coordinate                  : 0.057
        White X coordinate                  : 0.283
        White Y coordinate                  : 0.297

Established Timings
        Established Timings I       : 720 x 400 @70Hz (IBM,VGA)
                                      640 x 480 @60Hz (IBM,VGA)
                                      640 x 480 @72Hz (VESA)
                                      640 x 480 @75Hz (VESA)
                                      800 x 600 @60Hz (VESA)

        Established Timings II      : 800 x 600 @72Hz (VESA)
                                      800 x 600 @75Hz (VESA)
                                      832 x 624 @75Hz (Apple,Mac II)
                                      1024 x 768 @60Hz (VESA)
                                      1024 x 768 @70Hz (VESA)
                                      1024 x 768 @75Hz (VESA)

        Manufacturer's timings      :

Standard Timing Identification #1
        Horizontal active pixels    : 640
        Aspect Ratio                : 4:3
        Refresh Rate                : 85

Standard Timing Identification #2
        Horizontal active pixels    : 800
        Aspect Ratio                : 4:3
        Refresh Rate                : 85

Standard Timing Identification #3
        Horizontal active pixels    : 1024
        Aspect Ratio                : 4:3
        Refresh Rate                : 85

Standard Timing Identification #4
        Horizontal active pixels    : 1280
        Aspect Ratio                : 5:4
        Refresh Rate                : 60

Standard Timing Identification #5
        Horizontal active pixels    : 640
        Aspect Ratio                : 4:3
        Refresh Rate                : 100

Standard Timing Identification #6
        Horizontal active pixels    : 800
        Aspect Ratio                : 4:3
        Refresh Rate                : 100

Standard Timing Identification #7
        Horizontal active pixels    : 1280
        Aspect Ratio                : 4:3
        Refresh Rate                : 60

Standard Timing Identification #8
        Horizontal active pixels    : 1152
        Aspect Ratio                : 4:3
        Refresh Rate                : 75

Detailed Timing #1
        Pixel Clock (MHz)           : 25.18
        H Active (pixels)           : 640
        H Blanking (pixels)         : 160
        V Active (lines)            : 350
        V Blanking (lines)          : 99
        H Sync Offset (F Porch) (pixels)  : 16
        H Sync Pulse Width (pixels)       : 96
        V Sync Offset (F Porch) (lines)   : 37
        V Sync Pulse Width (lines)        : 2
        H Image Size (mm)           : 306
        V Image Size (mm)           : 230
        H Border (pixels)           : 0
        V Border (lines)            : 0
        Flags                       : Non-interlaced
                                    : Normal Display,
                                      No stereo
                                    : Digital Separate
                                      sync.
                                    : Negative Vertical
                                      Sync.
                                    : Positive
                                      Horizontal Sync.
```

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Hex Data of DDC2B (Continued)

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Monitor Descriptor #2
Serial Number : TY 123456

Monitor Descriptor #3
Monitor Name : PHILIPS 107E

Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 50
Max. Vt rate Hz : 160
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 70
Max. Supported Pixel : 110

Extension Flag : 0

Check sum : B8 (HEX.)

****

M30 107E2 70K CPT Tube EDID data (128 bytes)

****

0: 00	1: ff	2: ff	3: ff	4: ff	5: ff	6: ff	7: 00
8: 41	9: 0c	10: 04	11: e0	12: 40	13: e2	14: 01	15: 00
16: 06	17: 0b	18: 01	19: 01	20: 68	21: 1f	22: 17	23: b1
24: e8	25: 9e	26: a8	27: a1	28: 54	29: 46	30: 99	31: 24
32: 0e	33: 48	34: 4c	35: ad	36: ee	37: 00	38: 31	39: 59
40: 45	41: 59	42: 61	43: 59	44: 81	45: 80	46: 31	47: 68
48: 45	49: 68	50: 81	51: 40	52: 71	53: 4f	54: d6	55: 09
56: 80	57: a0	58: 20	59: 5e	60: 63	61: 10	62: 10	63: 60
64: 52	65: 08	66: 32	67: e6	68: 10	69: 00	70: 00	71: 1a
72: 00	73: 00	74: 00	75: ff	76: 00	77: 20	78: 54	79: 59
80: 20	81: 20	82: 31	83: 32	84: 33	85: 34	86: 35	87: 36
88: 0a	89: 20	90: 00	91: 00	92: 00	93: fc	94: 00	95: 50
96: 48	97: 49	98: 4c	99: 49	100: 50	101: 53	102: 20	103: 31
104: 30	105: 37	106: 45	107: 0a	108: 00	109: 00	110: 00	111: fd
112: 00	113: 32	114: a0	115: 1e	116: 47	117: 0b	118: 00	119: 0a
120: 20	121: 20	122: 20	123: 20	124: 20	125: 20	126: 00	127: b8

Address 78&79 factory code :

Brazil	HC(48h,43h)	Chungli	TY(54h,59h)
Delta	GK(47h,4Bh)	Juarez	TA(59h,41h)
Shenzshen	CX(43h,58h) same as Dongguan		
Suzhou	BZ(42h,5Ah)	Szombathely	HD(48h,44h)

Serial no.address:82,83,84,85,86,87,88,89

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DDC Instructions

1. General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect,repaired monitor the serial numbers have to be re-programmed.

It is advised to re-soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

DDC EDID structure
For the monitor : Standard Version 3.0
Structure Version 1.2

2. System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98.
3. EDID301.EXE program (3138 106 10103) shown as Fig. 1
4. Software DDC Alignment kits (4822 310 11184) shown as Fig. 2.

The kit contents: a. Alignment box x1
b. Printer cable x1
c. D-Sub cable x1

Note: The EDID301.EXE (Release Version 1.58, 20000818)is a windows-based program, which cannot be run in MS-DOS.

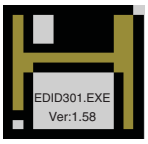


Figure 1 Diskette with EDID301.EXE

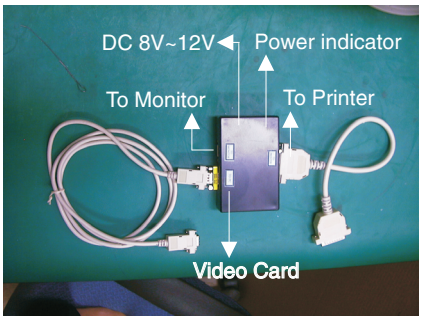
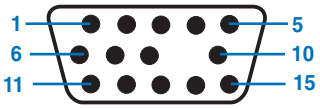


Fig. 2 Alignment Kits

3. Pin assignment

A. 15-pin D-Sub Connector

The 15-pin D-sub connector (male) of the signal cable on the 3rd row for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Sync. Ground
3	Blue video input	11	Ground
4	Ground	12	Bi-directional data(SDA)
5	for selftest(PC ground)	13	H.Sync
6	Red video ground	14	V.Sync(VCLK)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

DDC Instructions (Continued)

4. Configuration and procedure

There is no Hardware DDC (DDC IC) anymore. Main EEPROM stores all factory settings and DDC data (EDID code) which is so called Software DDC. The following section describes the connection and procedure for Software DDC application. The main EEPROM can be re-probrammed by enabling "factory memory data write" function on the DDC program (EDID301.EXE).

***** INITIALIZE ALIGNMENT BOX *****

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before re-programming DDC Data. Following steps show you the procedures and connection.

Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
Step 2: Connecting printer cable and video cable of monitor as shown in Fig.3.

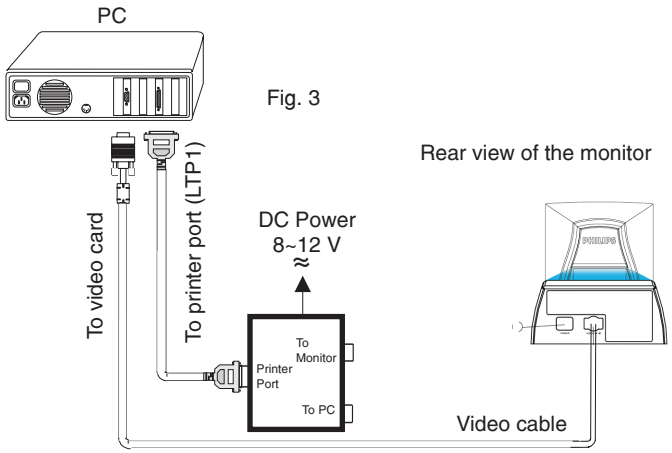


Fig. 3

Step 3: Installation of EDID301.EXE

Method 1: Start on DDC program

Start Microsoft Windows.
1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click Start , choose Run at start menu of Windows 95/98 as shown in Fig. 4.

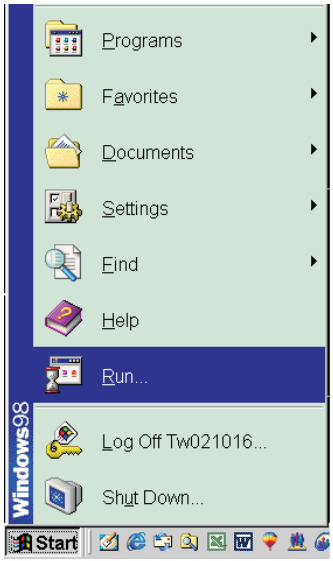


Fig. 4

3. At the submenu, type the letter of your computer's floppy disk drive followed by :EDID301 (for example, A:\EDID301, as shown in Fig. 5).

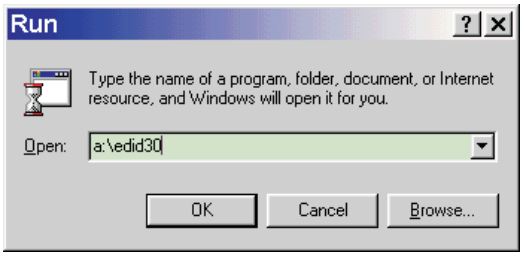


Fig. 5

4. Click **OK** button. The main menu appears (as shown in Fig. 6).
This is for initialize alignment box.

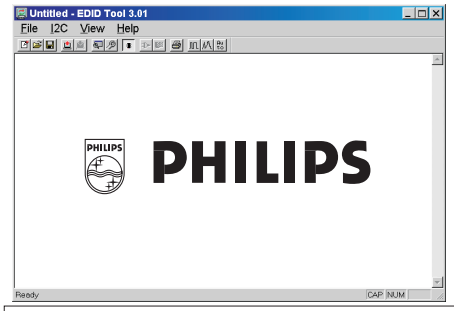


Fig. 6

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 7) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.

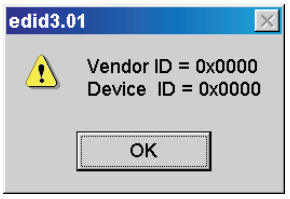


Fig. 7

Method 2: After create a shortcut of EDID301.EXE
: Double click EDID301 icon (as shown in Fig. 8) which is on the screen of Windows Wallpaper.
Bring up main menu of EDID301 as shown in Fig. 9.
This is for initialize alignment box.

Fig. 8

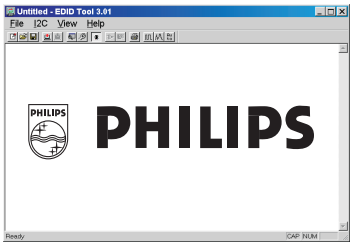
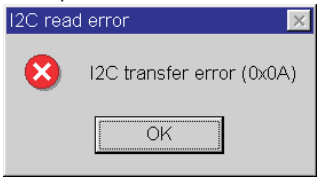


Fig. 9

Note 2: During the loading, EDID301 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.
1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.



DDC Instructions (Continued)

Re-programming EEPROM (Software DDC)

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 10

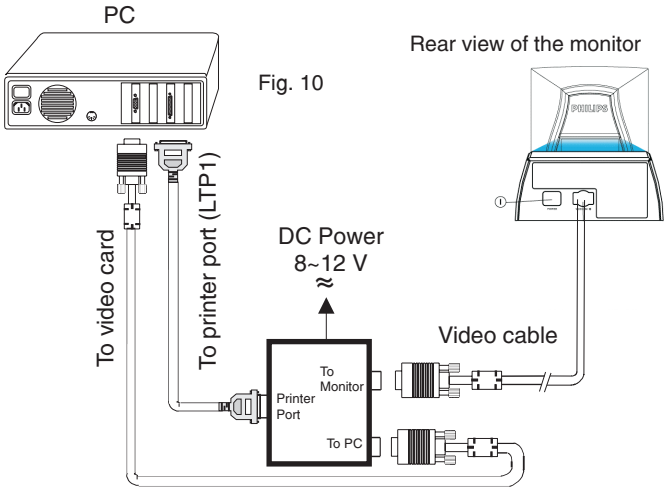


Fig. 10

Step 2: Read DDC data from monitor

1-1 Click the left key of Mouse, or hit any key on the keyboard, then the characters disappear from the screen.
1-2 Click icon as shown if Fig. 11 from the tool bar to bring up the "Configuration Setup" windows as shown in Fig. 12.

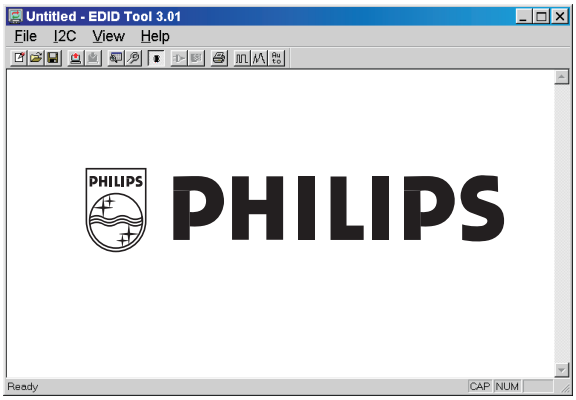


Fig. 11

2. Select the DDC2B as the communication channel. Select "**Enable**" & fill out "**F0**" for Mapped EDID page address as shown in Fig. 12.

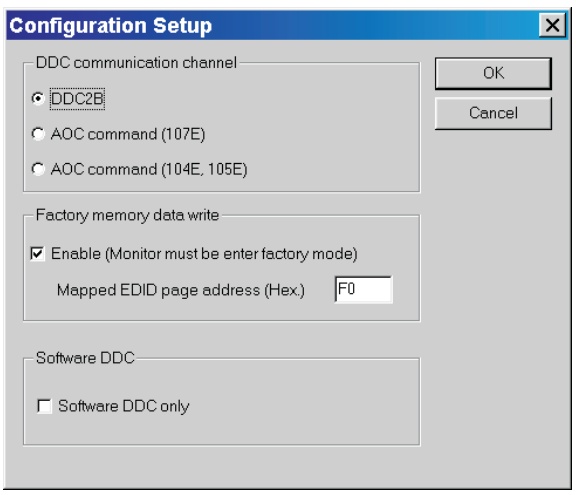


Fig. 12

3. Click OK button to confirm your selection.

4. Click icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 13.

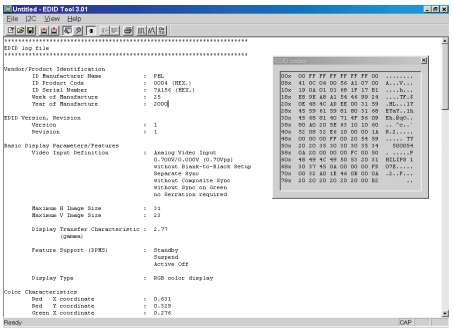


Fig. 13

Step 3: Modify DDC data (verify EDID version, week, year)

1. Click (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 14 .
EDID301 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

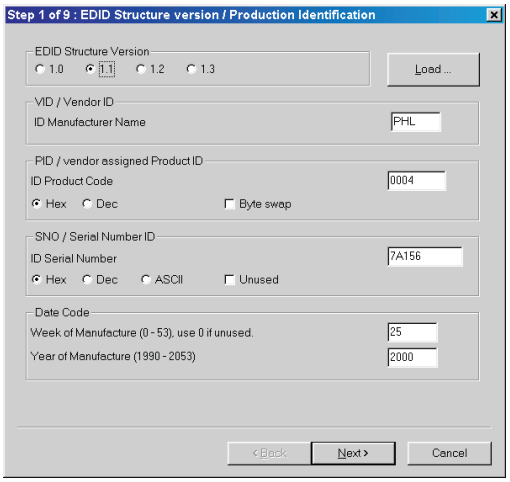


Fig. 14

Step 4: Modify DDC data (Monitor Serial No.)

1. Click **Next** till the Step 7 of 9 window appears as shown in Fig. 15.
2. Fill out the new Serial No. (for example, TY 503960, TY 123456).
3. Click **Next** till the last step window appears, then click **Finish** to exit the Step window.

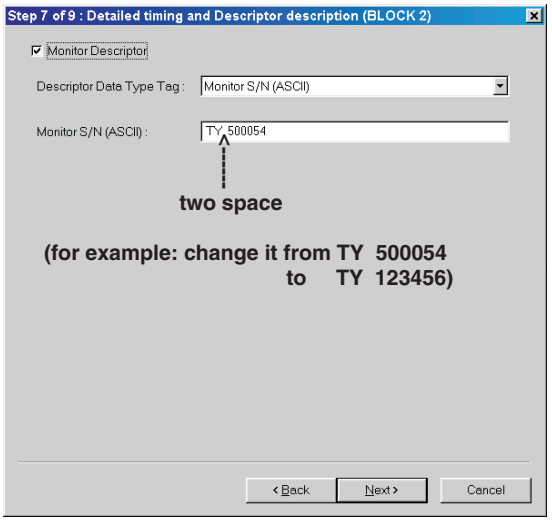
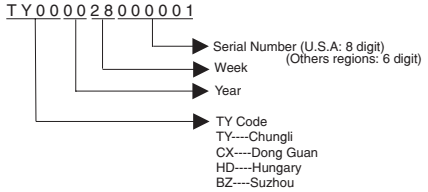

Step 7 of 9 : Detailed timing and Descriptor description (BLOCK 2)
Monitor Descriptor
Descriptor Data Type Tag :
Monitor S/N (ASCII)
Monitor S/N (ASCII) :
TY 500054
two space
(for example: change it from TY 500054
to TY 123456)
< Back
Next >
Cancel

Fig. 15

Definition of Serial Number (barcode format)



DDC Instructions (Continued)

Step 5: **Configuration Setup & Enter Factory Mode ** for "write EDID data"

1. Click icon from the tool bar to bring up the Configuration Setup windows again. Then, select "Software DDC only" as shown in Fig. 16. Click "OK".

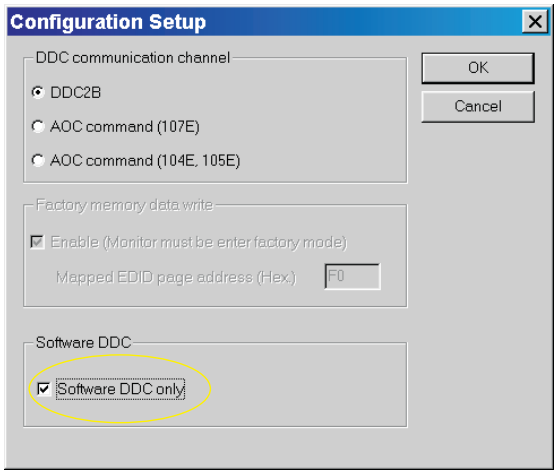


Fig. 16

If you do not select "Software DDC only", when you execute "write EDID", it will bring up an error message as below.

To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press " " and " " simultaneously on the front control panel,then press " ",wait till the OD menu with characters M 30 107E P V0.81 20010207 (below OSD menu)" come on the screen of monitor.

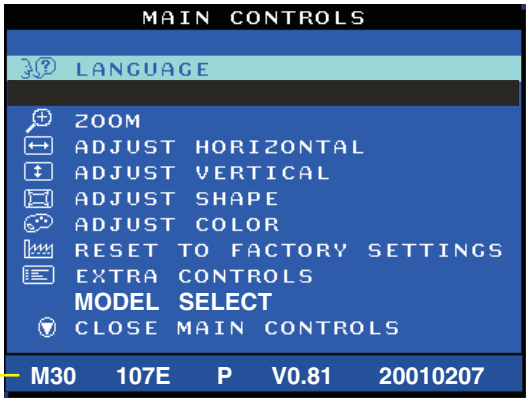
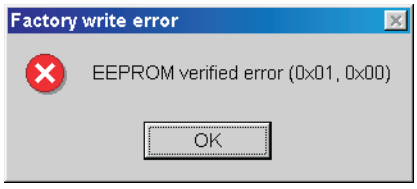


Fig. 17

If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.

If you do not access "Factory mode", when you execute "write EDID", it will bring up an error message as below.



Step 6: Write DDC data

1. Click (Write EDID) icon from the tool bar to write DDC data. Bring up "Writing 0%~100%, ready" a progressing bar on the left down corner.
2. Click (Read EDID) to confirm it.

Step 7: Confirm Serial Number in User Mode

1. Press the button to turn off the monitor. Press the button again to turn on the monitor.
2. Press the button to bring up the OSD Main Menu.
3. Press the button to select Extra Controls, press the button to confirm your selection.
4. Confirm the Serial Number "123456" is updated as shown in Fig. 18.

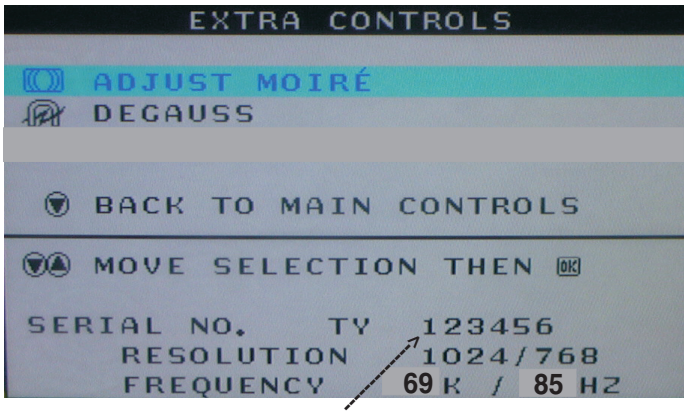


Fig. 18

Step 8: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar and give a file name as shown in Fig. 19.
   The file type is EDID301 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc flie to re-load it into EEPROM for DDC Data application.

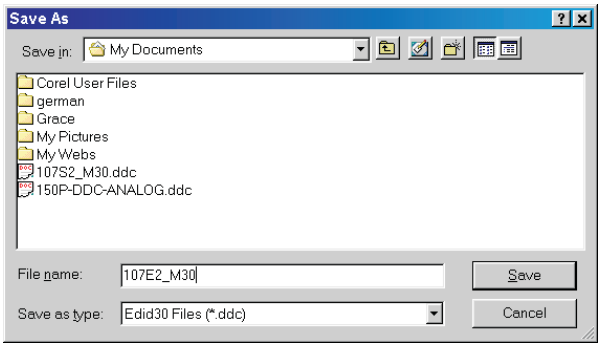


Fig. 19

2. Click **Save**.

DDC Instructions (Continued)

Step 9: Load DDC data

1. Click from the tool bar.
2. Select the file you want to open as shown in Fig. 20.
3. Click **Open**.
4. Access "Factory Mode" and enable "Software DDC only" as shown in Fig. 17 & Fig. 16.
5. Write EDID (click).

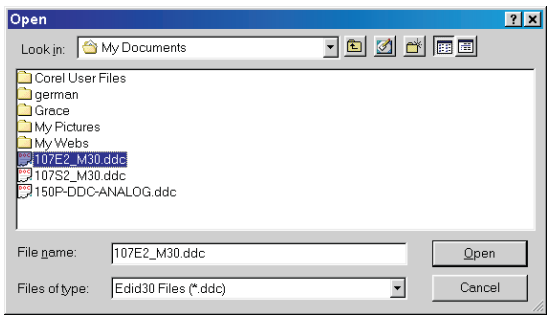


Fig. 20

Step 10: Exit DDC program
Pull down the File menu and select Exit as shown in Fig. 21.
(EDID Tool 3.01)

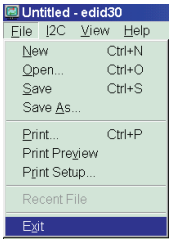


Fig. 21

Note1 : In User Mode: Proceed "Read DDC data only"
Before read EDID code, please confirm that the **Software DDC only was disabled** as shown in Fig. 22.

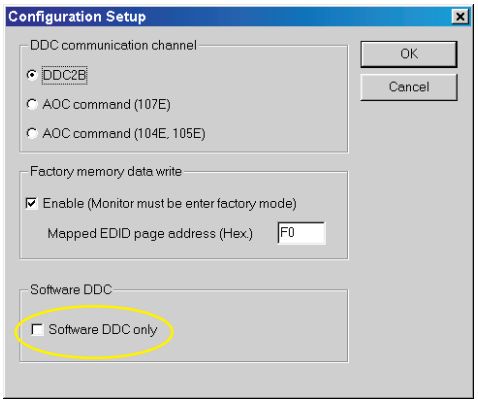
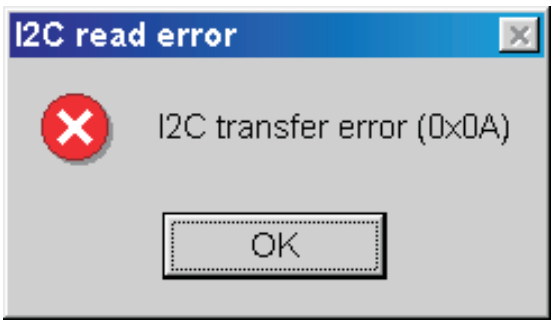


Fig. 22

If you do not disable "Software DDC only", when you execute "read EDID", it will bring up an error message as below.



****

Note 2 : In Factory Mode => Proceed "Read/Write DDC data"
Before Read/Write EDID code, please confirm that the **Software DDC only was enabled** as shown in Fig. 23.

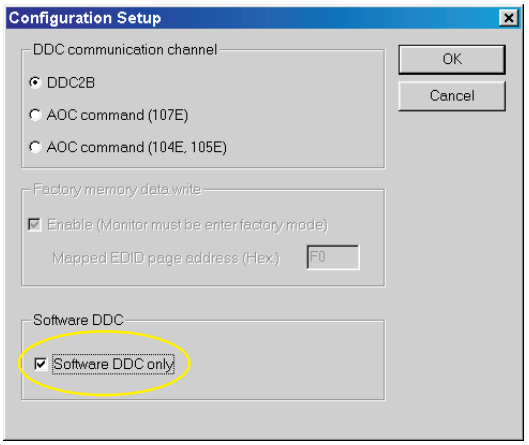


Fig. 23

Electrical Adjustments

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has **8 factory-preset modes** as below.

720 x 400 31.5 kHz/70 Hz	1024 x 768	68.7 kHz/85 Hz
640 x 480 31.5 kHz/60 Hz		
640 x 480 43.3 kHz/85 Hz		
800 x 600 46.9 kHz/75 Hz		
800 x 600 53.6 kHz/85 Hz		
1024x768 60.0 kHz/75 Hz		
1280 x 1024 64.0kHz/60Hz		

14 factory-preload modes as below

640 x 350 31.5 kHz/70 Hz	800 x 600	48.1 kHz/72 Hz
640 x 350 37.9 kHz/85 Hz	800 x 600	63.9 kHz/100 Hz
640 x 480 37.5 kHz/75 Hz	832 x 624	49.7 kHz/75 Hz
640 x 480 37.9 kHz/72.8 Hz	1024 x 768	48.4 kHz/60 Hz
640 x 480 50.6 kHz/100 Hz	1024 x 768	56.5 kHz/70 Hz
720 x 400 37.9 kHz/85 Hz	1152 x 864	67.5 kHz/75 Hz
800 x 600 37.90kHz/60Hz	1280 x 960	60.0 kHz/60 Hz

1. With normal VGA card:
If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

2. AC/DC Measurement:
The measurements for AC waveform and DC figure is based on 640 x 480 31.5 kHz/60 Hz resolution mode with test pattern "gray scale". Power input: 110V AC

3.Monitor the following auxiliary voltages.

SOURCE ACROSS 7114 Pinout and GRN	+5 V	+/- 0.25 VDC
SOURCE ACROSS C2155	+6.3 V	+/- 0.3 VDC.
SOURCE ACROSS C2141	+8.0 V	+/- 0.5 VDC.
SOURCE ACROSS C2153	+13.1V	+/- 1.0 VDC.
SOURCE ACROSS C2154	- 13.1V	+/- 1.0 VDC.
SOURCE ACROSS C2151	+83.0V	+/- 1.0 VDC.
SOURCE ACROSS C2609	- 170 V	+/- 15.0 VDC.
SOURCE ACROSS C2152(+ to Gnd)	+180.0V	+/-2.0 VDC.

4. General conditions for alignment

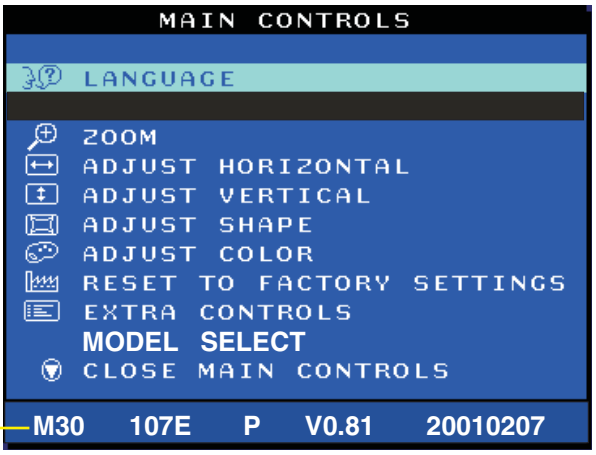
4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=450 mG, Z=0
Southern hemisphere : H=0, V=-500 mG, Z=0
Equatorial Support : H=0, V=0 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground.
Note: Do not use heatsink as ground.
4.5 Adjust brightness controls to center position except for contrast control which should be set to MAX.

5. To access factory mode

5.1 Turn off monitor (don't turn off PC)
5.2 Press " " and " " simultaneously on the front control panel,then press " ",wait till the OSD menu with characters M 30 107E P V0.81 20010207 (below OSD menu)" come on the screen of monitor.



Factory Mode Indicator

5.3 If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
5.4 Using " " : to select OSD menu.
5.5 Using " " : to increase or decrease the setting.
5.6 Using " " to access/confirm the selection.

To leave factory mode

5.7 After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

6. Picture geometry setting

- Apply a video signal with cross-hatch pattern.
- Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode.
- Set contrast control at Max. position, and brightness control in the mid-point.

6.4 Alignment of horizontal geometry and vertical geometry
6.4.1 Adjust the H-width to 306 mm
6.4.2 Adjust the H-phase to center position.
6.4.3 Adjust V-size to 230mm.
6.4.4 Adjust V-Position to center.
Adjust Trapezoid/pincushion/balance pincushion/paralleogram
6.4.5 Adjust picture tilt via I^2C BUS for correct top/bottom lines.
6.4.6 Adjust the top and bottom corner by I^2C to get optimum corner geometry.
6.4.7 Adjust the parallelogram by I^2C BUS to get optimum vertical line.
6.4.8 Adjust the balance pincushion by I^2C BUS to get optimum vertical line.
6.4.9 Adjust the trapezoid to get optimum vertical line.

6.5 Adjust size/centering/trapezium/pincushion/parallelogram of all other preset modes via I^2C bus.
(to repeat from step 6.4.1 to step 6.4.9)

7. Alignment of Vg2 cut-off point, white tracking

Equipment : 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)

7.1 Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).
* Use color-analyzer (Minolta CA-100) to adjust R/G/B cutoff and gain.

OSD R/G/B cut-off and R/G/B gain can be accessed (for Philips CRT), with initial data:
9300 °K
R cutoff = 50%, R gain = 73% (I^2 C)
G cutoff = 50%, G gain = 73% (I^2 C)
B cutoff = 50%, B gain = 73% (I^2 C)
6500 °K
R cutoff = 50%, R gain = 71% (I^2 C)
G cutoff = 50%, G gain = 71% (I^2 C)
B cutoff = 50%, B gain = 71% (I^2 C)

Brightness = 50%, Sub-Contrast = 86%, ABL = 63% (I^2 C)

Step 1: To access factory mode
- Turn off monitor (don't turn off PC)
- Press " ◀▶ and " ⏻ " simultaneously on the front control panel,then press " OSD ",wait till the OSD menu with characters M 30 107E P V0.81 20010207 (below OSD menu)" comes on the screen of monitor as shown in Fig. 2.1.

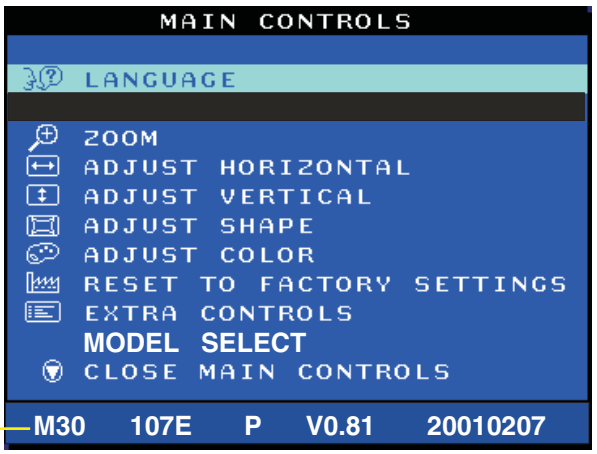


Fig. 2.1

- If OSD menu disappears on the screen of monitor, press " OSD " again (anytime), then the OSD menu comes on the screen again.
- Using " ▼ " to select M 30 107E P V0.81 20010207.
- Press " OSD " button to access/confirm the selection.
Bring up the "function adjustment" as shown in Fig. 2.2.
- Press " ▼ " or " ▲ " button for function selection as shown in Fig. 2.2.
- Press " OSD " button to access/confirm each item selection (The cursor indicator will be changed from yellow colour to red colour.)
- Using " ▶ " or " ◀ " : to increase or decrease the value.

9300 BIAS R G B GAIN R G B	(for ref.177,247,226,210,176,170)
6500 BIAS R G B GAIN R G B	(for ref. 180,247,224,218,162,130)
FOCUS(H V) VLINBAL USER	(for ref. 0,120,95,95)
RASTER(H V) LIN (H V) SUB	(for ref. 127,127,255,41,80)
V(OFFSET GAIN) SUB	(for ref. 170,255,224)
CORNER(T B) ABL SUB	(for ref. 70,65,200,75)
VG2 BPLUS	(for ref. 176,177)
H (EHT REGU)	(for ref. 130,86)
LF (BRIGH SHARP)	
48K SUB	(for ref. 210)
EXIT	
177	

Fig. 2.2
(for example: 177 is value of "BIAS R")

BIAS R G B : R(red) G(green) B(blue) cutoff
GAIN R G B : R(red) G(green) B(blue) gain
V FOCUS : Vertical Focus
VLIN BAL : Vertical Linearity Balance
USER : Horizontal size range
RASTER H: Horizontal DC (raster) Shift
RASTER V: Vertical DC (raster) Shift
HLIN : Horizontal Linearity
V LIN : Vertical Linearity
SUB : Zoom range
SUB : Sub Contrast
SUB : Sub Brigntness
V OFFSET : Vertical offset
V GAIN : Vertical Gain
ABL : Auto Beam Limit
T CORNER: Corner Correctionof TOP
B CORNER: Corner Correctionof BOTTOM
H (EHT REGU): Horizontal Extensive High Tension

48K SUB : H-Size limit

7.2 Connect the video input, set brightness control at center, and contrast control at maximum
7.3
set R,G,B cut-off at 127 9300k and 6500K(EEPROM preload value)
R,G,B gain at 185 9300k and
180 6500K(EEPROM preload value)
ABL at 160 9300k (EEPROM preload value)
SUB-CON at 220 9300k (EEPROM preload value)
7.4 Adjust 9300K color:
With color analyzer CA 100,
set R,G,B cut-off x=0.283, y=0.297, Y=0.10
7.5 Set R,G,B gain Y= 41+/- 1FL, x=0.283, y=0.297
7.6 Repeat 7.4,7.5 until RGB three guns get x=0.283, y=0.297, readings on low Y=0.10+/-0.05FL and high Y=41+/-1FL brightness of 9300.

7.7 Adjust 6500K color:
With color analyzer CA 100,
set R,G,B cut-off x=0.313, y=0.329, Y=0.10
7.8 Set R,G,B gain Y= 36+/- 1FL, x=0.313, y=0.329
7.9 Repeat 7.7,7.8 until RGB three guns get x=0.313, y=0.329, readings on low Y=0.10+/-0.05FL and high Y=36+/-1FL brightness of 6500.

7.10 Adjust SUB-CON to get Y=41+/-1FL.
(at 9300 high brightness of R/G/B gain, contrast at 100%)

7.11 Apply full white pattern of 9300 mode, adjust ABL to reach 30 +/- 1FL.

Electrical Adjustments (Continued)

8. Focus adjustment

Apply a signal of " me " character. at 68.7 kHz/85 Hz mode set the brightness to mid-position , contrast to 25FL at the corner of the screen and adjust the focus for optimal sharpness in the area within 2/3 from the screen center.

9. Loading DDC code

The DDC HEX data should be written into the EEPROM (7803) by EDID301.EXE Program(3138 106 10103) and software DDC Alignment kits (4822 310 11184).

10. Purity adjustment

- Make sure the monitor is not exposed to any external magnetic field.
- Produce a full red pattern on the screen, adjust the purity magnet rings on the PCM assy (on CRT) to obtain a complete field of the color red. This is done by moving the two tabs (2-pole) in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180 degree.
- Check by full green pattern and full blue pattern again to observe their respective color purity.

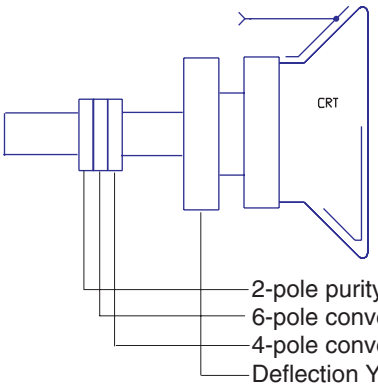
11. Static convergence

Introduction

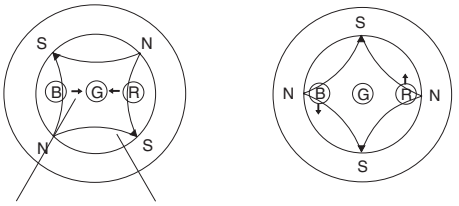
Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the CRT. These are the 4-pole magnet and the 6-pole magnet.
The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the other. The 6-pole magnet moves the outermost electron beam (R, B and G) parallel in the opposite direction from the other.
The magnetic field of the above magnets do not affect the center of the CRT neck.

Setting

- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly.
- Signal: 640 * 480, 31.5 kHz/60 Hz mode.
- Set the tabs of the 4-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R and B electron beams.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- Pole magnet again.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- pole magnet again.

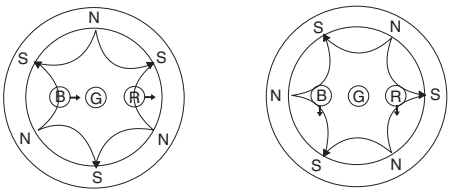


4-pole — Beam motion producced by the 4-pole convergence magnet



Beam displacement direction — Magnetic flux lines

6-pole — Beam motion producced by the 6- pole convergence magnet



Safety test requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both **Hipot** and **Ground Continuity** testing.

HI-POT TEST INSTRUCTION

1. Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+R ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation	5 mA	
Ramp time	set at 2 seconds		

2.2.1 The test with AC voltage is only for production purpose, Service center shall use DC voltage.

2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute.No breakdown during the test.

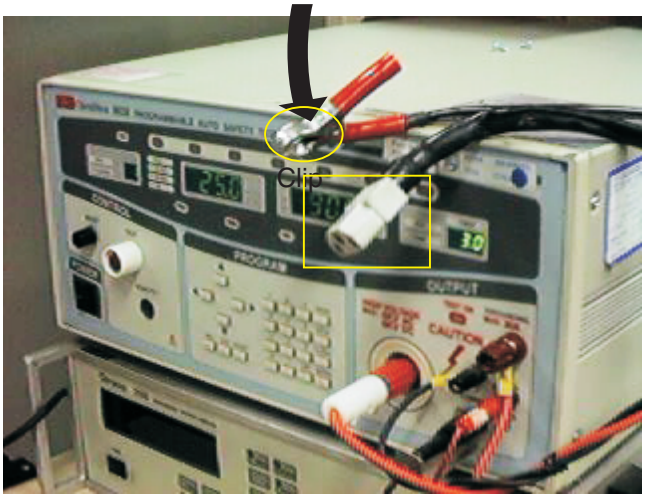
2.2.3 The test voltage must be maintained within the specified voltage + 5%.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

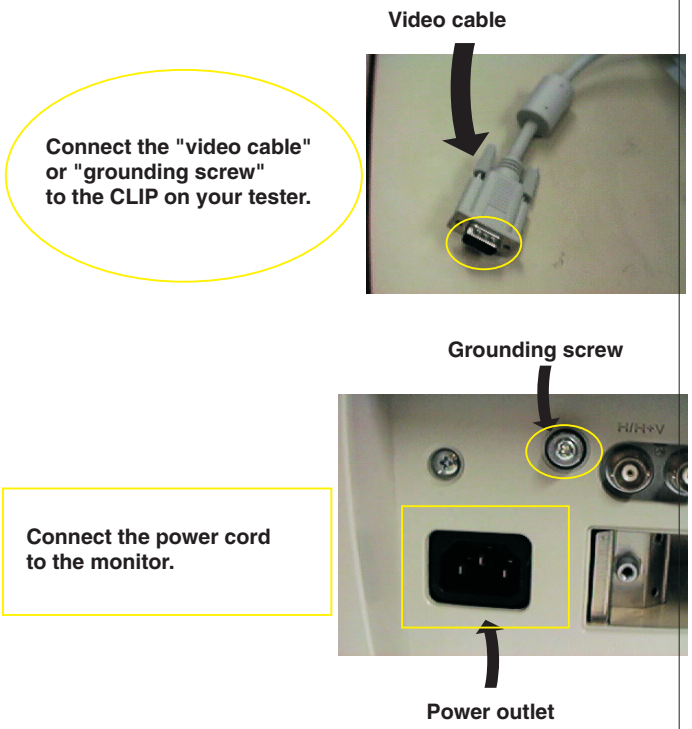
3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)


Video cable
Connect the "video cable" or "grounding screw" to the CLIP on your tester.
Grounding screw
Connect the power cord to the monitor.
Power outlet

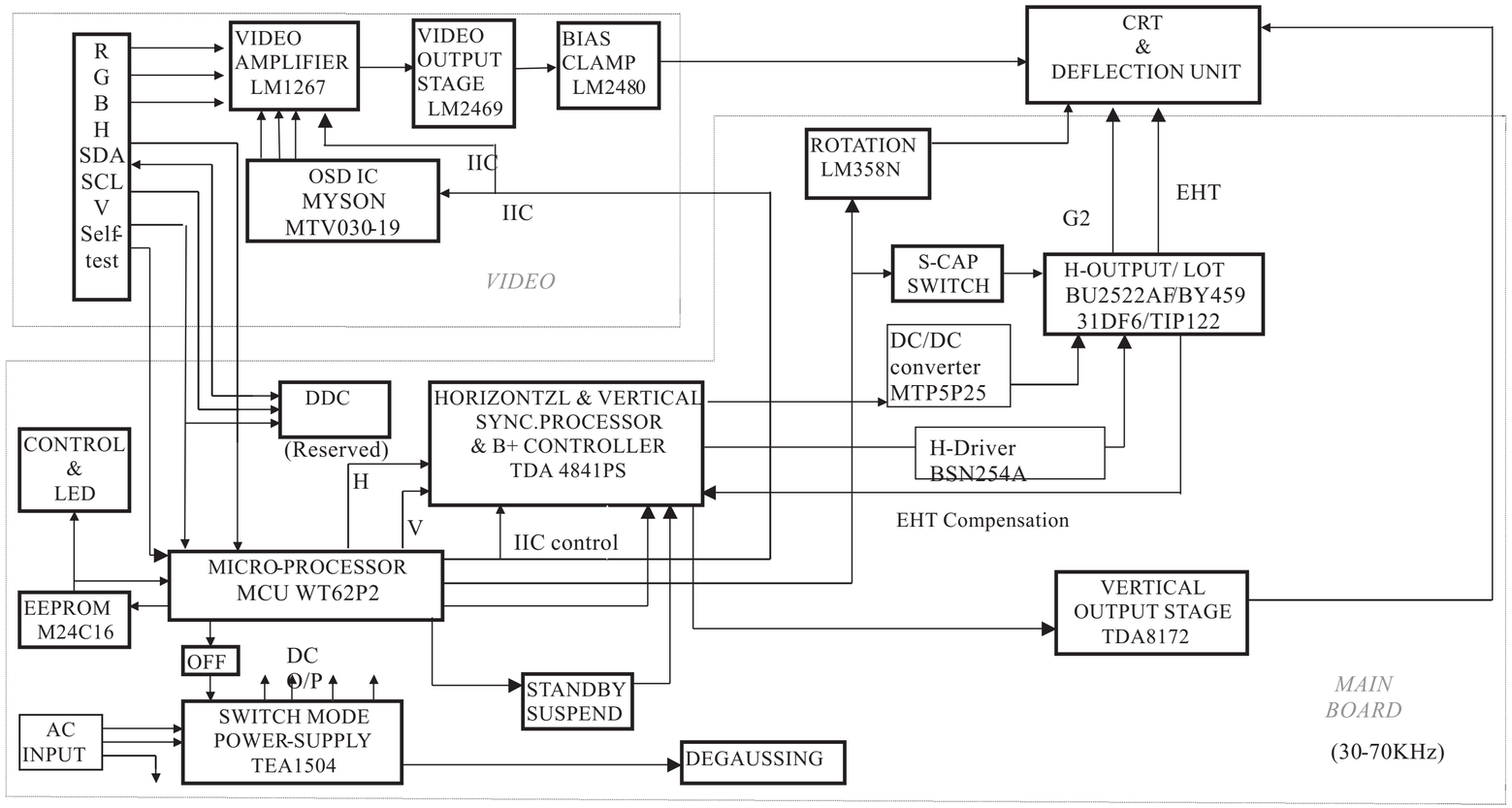
(Rear view of monitor)

4. Recording

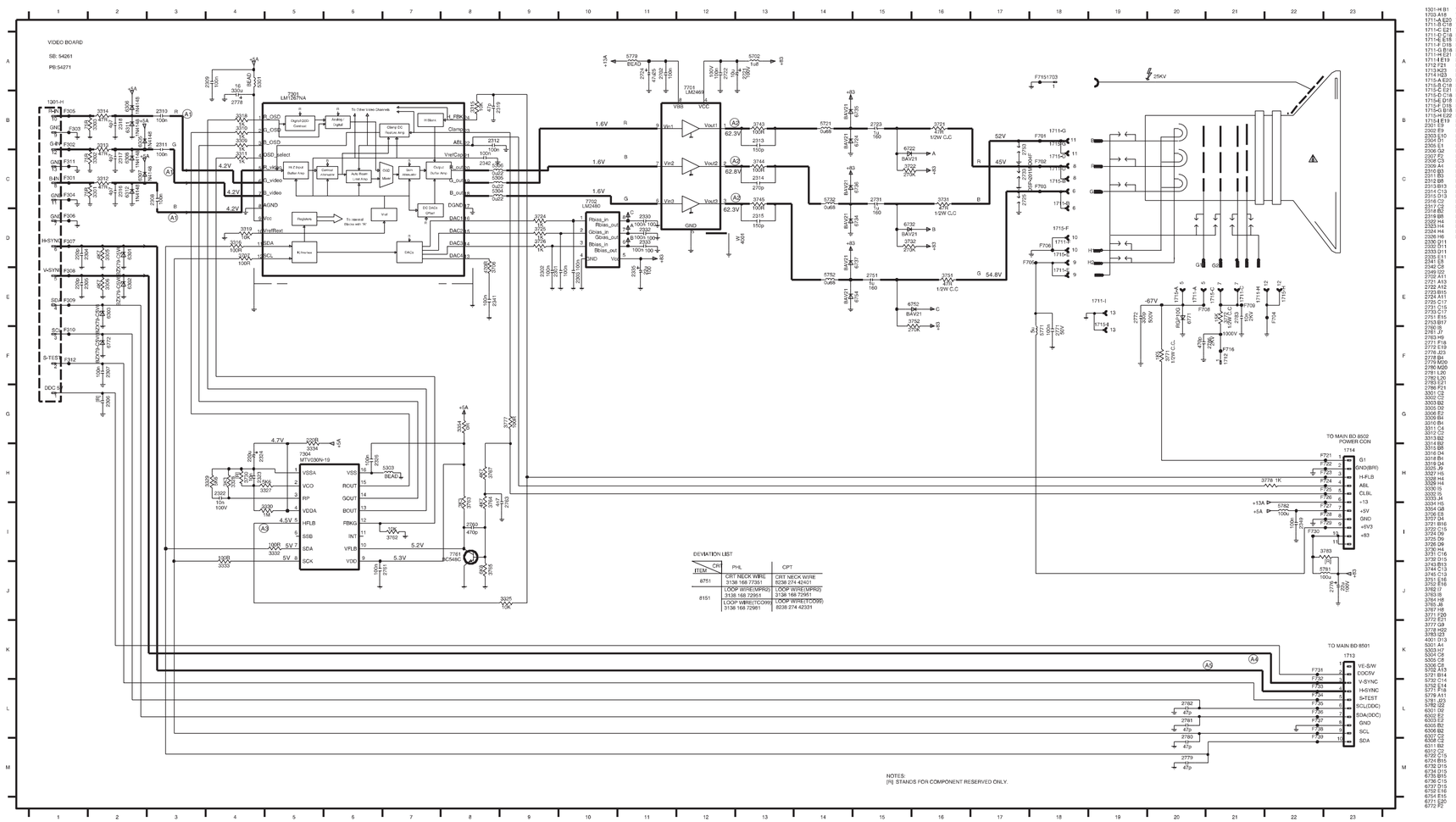
Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Block diagram

• FUNCTION BLOCK OF M30 107E



A



A1 7301-6
1 V/div AC
5 mS/div

A4 1713-3
2 V/div AC
5 mS/div

A1 7301-7
1 V/div AC
5 mS/div

A5 1713-4
2 V/div AC
5 uS/div

A1 7301-7
1 V/div AC
5 mS/div

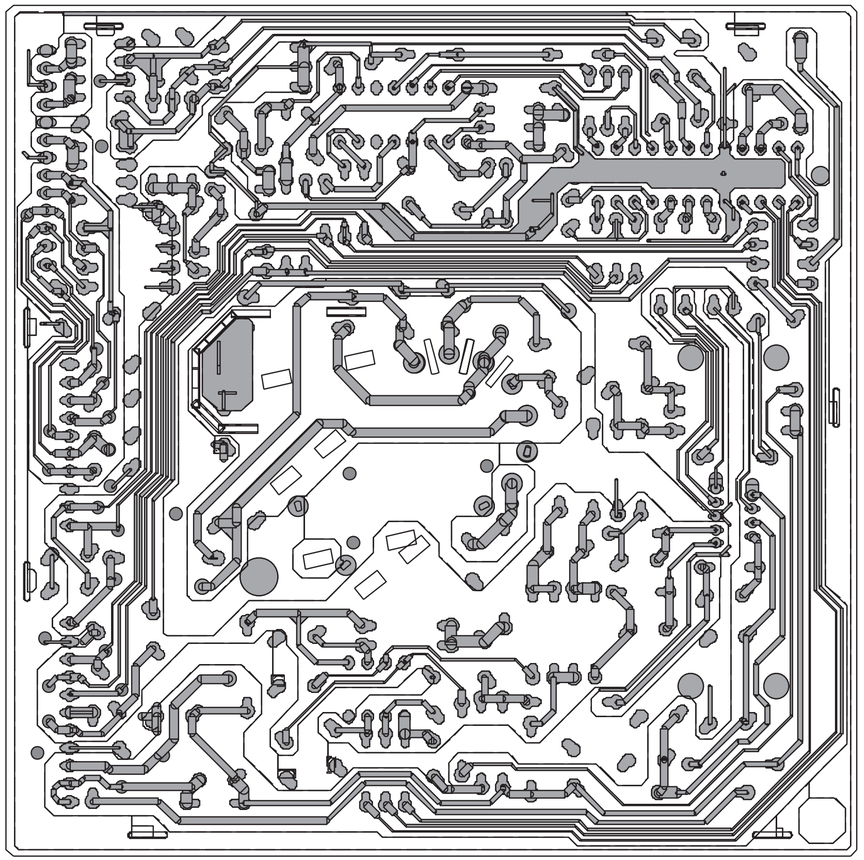
A2 7701-1
20 V/div AC
5 mS/div

A2 7701-2
20 V/div AC
5 mS/div

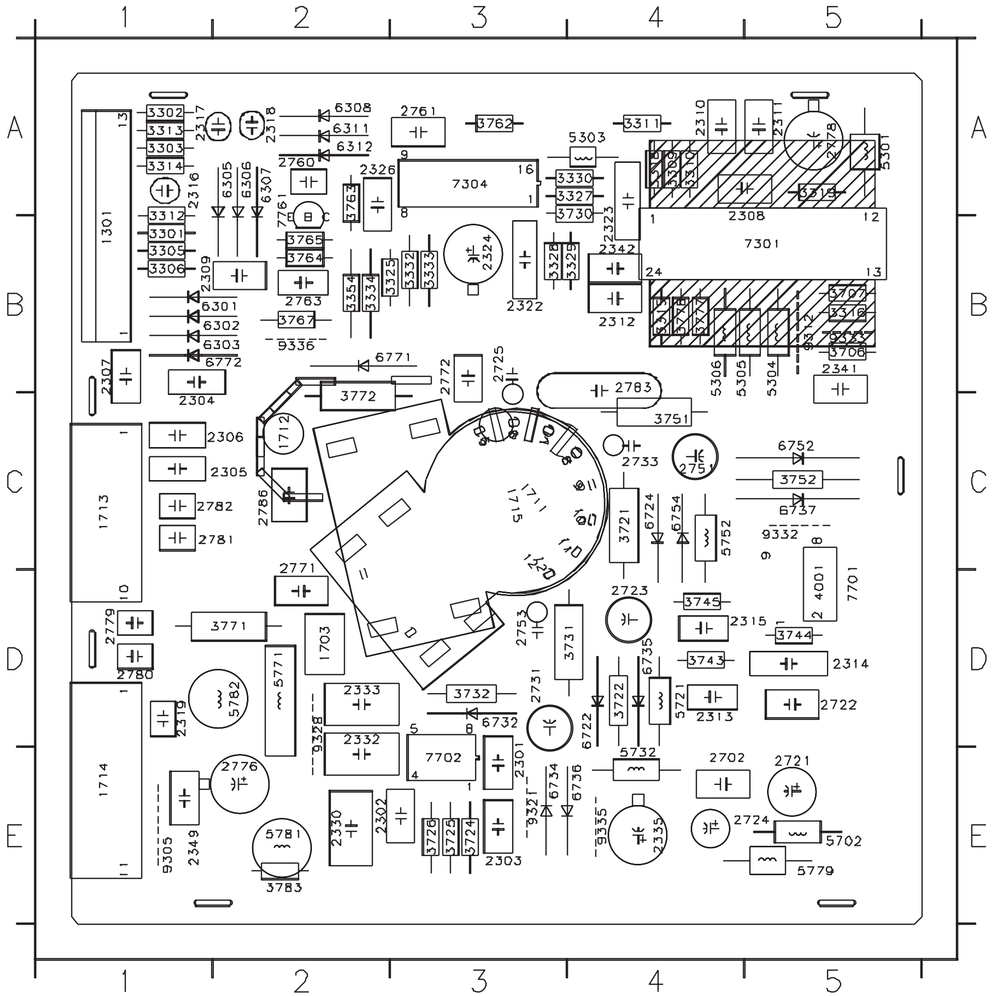
A2 7701-3
20 V/div AC
5 mS/div

A3 7304-5
2 V/div AC
5 uS/div

Video Panel PWB (A)



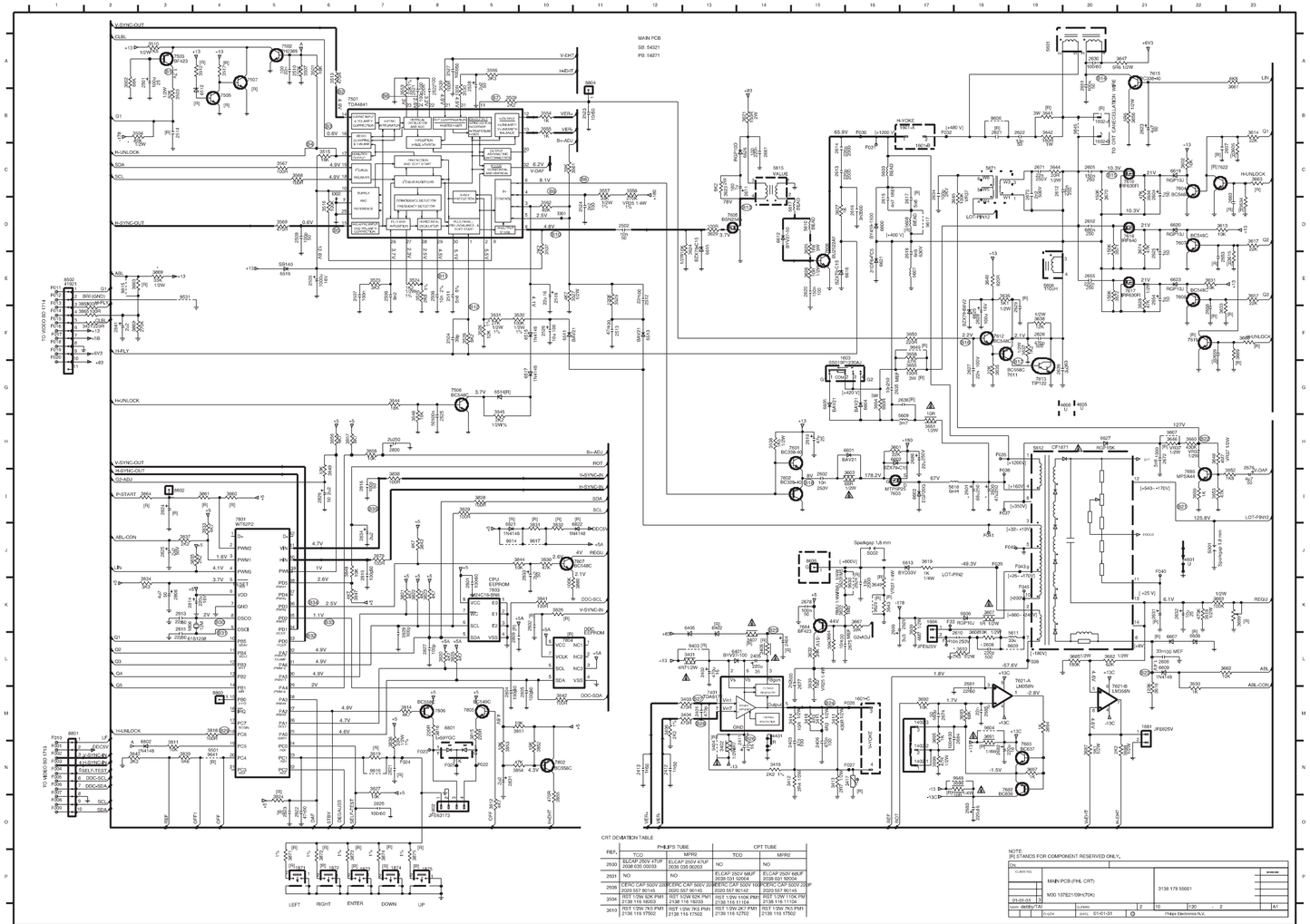
54261cus



54261hmc

# REF	GRID	BOARD SIDE
1301	B1	B
1703	D2	B
1711	C3	B
1712	C2	B
1713	C1	B
1714	E1	B
1715	C3	B
2301	E3	B
2302	E2	B
2303	E3	B
2304	C1	B
2305	C2	B
2306	C2	B
2307	B1	B
2308	A5	B
2309	B1	B
2310	A4	B
2311	A5	B
2312	B4	B
2313	D4	B
2314	D5	B
2315	D5	B
2316	A1	B
2317	A1	B
2318	A2	B
2319	D1	B
2322	B3	B
2323	B4	B
2324	B3	B
2326	A2	B
2330	E2	B
2332	D2	B
2333	D2	B
2335	E4	B
2341	B5	B
2342	B4	B
2349	E1	B
2702	E4	B
2721	E5	B
2722	D5	B
2723	D4	B
2724	E5	B
2725	B3	B
2731	D3	B
2733	C4	B
2751	C4	B
2753	D3	B
2760	A2	B
2761	A3	B
2763	B2	B
2771	C2	B
2772	B3	B
2776	E2	B
2778	A5	B
2779	D1	B
2780	D1	B
2781	C2	B
2782	C2	B
2783	B4	B
2786	C2	B
3301	B1	B
3302	A1	B
3303	A1	B
3305	B1	B
3306	B1	B
3309	A4	B
3310	A4	B
3311	A4	B
3312	A1	B
3313	A1	B
3314	A1	B
3315	B4	B
3316	B5	B
3318	A4	B
3319	A5	B
3325	B2	B
3327	A4	B
3328	B3	B
3329	B4	B
3330	A4	B
3332	B3	B
3333	B3	B
3334	B2	B
3354	B2	B
3706	B5	B
3707	B5	B
3721	C4	B
3722	D4	B
3724	E3	B
3725	E3	B
3726	E3	B
3730	A4	B
3731	D4	B
3732	D3	B
3743	D4	B
3744	D5	B
3745	D4	B
3751	C4	B
3752	C5	B
3762	A3	B
3763	A2	B
3764	B2	B
3765	B2	B
3767	B2	B
3771	D2	B
3772	C2	B
3777	B4	B
3778	B4	B
3783	E2	B
4001	D5	B
5301	A5	B
5303	A4	B
5304	B5	B
5305	B4	B
5306	B4	B
5702	E5	B
5721	D4	B
5732	E4	B
5752	C4	B
5771	D2	B
5779	E5	B
5781	E2	B
5782	D2	B
6301	B2	B
6302	B2	B
6303	B2	B
6305	A2	B
6306	A2	B
6307	A2	B
6308	A2	B
6311	A2	B
6312	A2	B
6722	D4	B
6724	C4	B
6732	D3	B
6734	E3	B
6735	D4	B
6736	E4	B
6737	C5	B
6752	C5	B
6754	C4	B
6771	B3	B
6772	B2	B
7301	B5	B
7304	A3	B
7701	D5	B
7702	E3	B
7761	A2	B
9305	E1	B
9312	B5	B
9321	E3	B
9328	D2	B
9332	C5	B
9333	B5	B
9335	E4	B
9336	B2	B

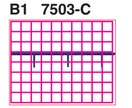
B



Back

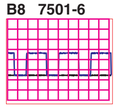
Forward

B1 7503-C



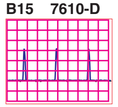
50 V/div AC
5 mS/div

B8 7501-6



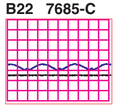
5 V/div AC
10 uS/div

B15 7610-D



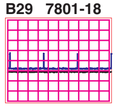
50 V/div AC
10 uS/div

B22 7685-C



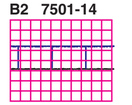
100 V/div AC
10 uS/div

B29 7801-18



0.5 V/div AC
5 mS/div

B2 7501-14

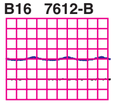


2 V/div AC
5 mS/div

B9 7501-4

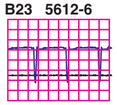
1 V/div AC
10 uS/div

B16 7612-B



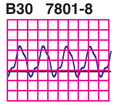
1 V/div AC
5 MS/div

B23 5612-6



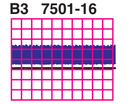
0.5 V/div AC
10 uS/div

B30 7801-8



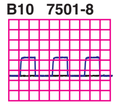
2 V/div AC
2 mS/div

B3 7501-16



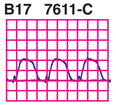
1 V/div AC
5 mS/div

B10 7501-8



5 V/div AC
10 uS/div

B17 7611-C

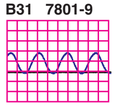


0.5 V/div AC
10 uS/div

B24 7401-5

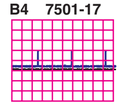
10 V/div AC
5 mS/div

B31 7801-9



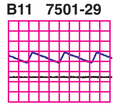
2 V/div AC
2 mS/div

B4 7501-17



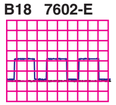
0.5 V/div AC
5 mS/div

B11 7501-29



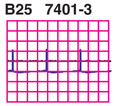
2 V/div AC
10 uS/div

B18 7602-E



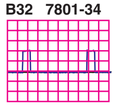
5 V/div AC
10 uS/div

B25 7401-3



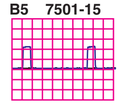
10 V/div AC
5 mS/div

B32 7801-34



2 V/div AC
5 uS/div

B5 7501-15

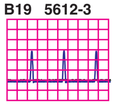


2 V/div AC
5 uS/div

B12 7501-1

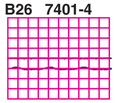
2 V/div AC
10 uS/div

B19 5612-3



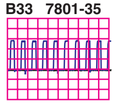
20 V/div AC
10 uS/div

B26 7401-4



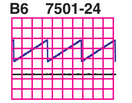
10 V/div AC
5 mS/div

B33 7801-35



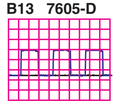
1 V/div AC
5 uS/div

B6 7501-24



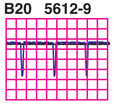
1 V/div AC
5 mS/div

B13 7605-D



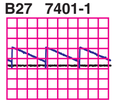
50 V/div AC
10 uS/div

B20 5612-9



50 V/div AC
10 uS/div

B27 7401-1

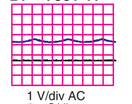


0.5 V/div AC
5 mS/div

B34 7801-36

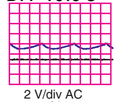
1 V/div AC
5 uS/div

B7 7501-11



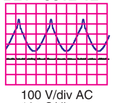
1 V/div AC
5 mS/div

B14 7615-C



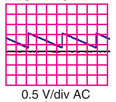
2 V/div AC
10 uS/div

B21 5612-12



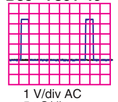
100 V/div AC
10 uS/div

B28 7401-7



0.5 V/div AC
5 mS/div

B35 7801-40

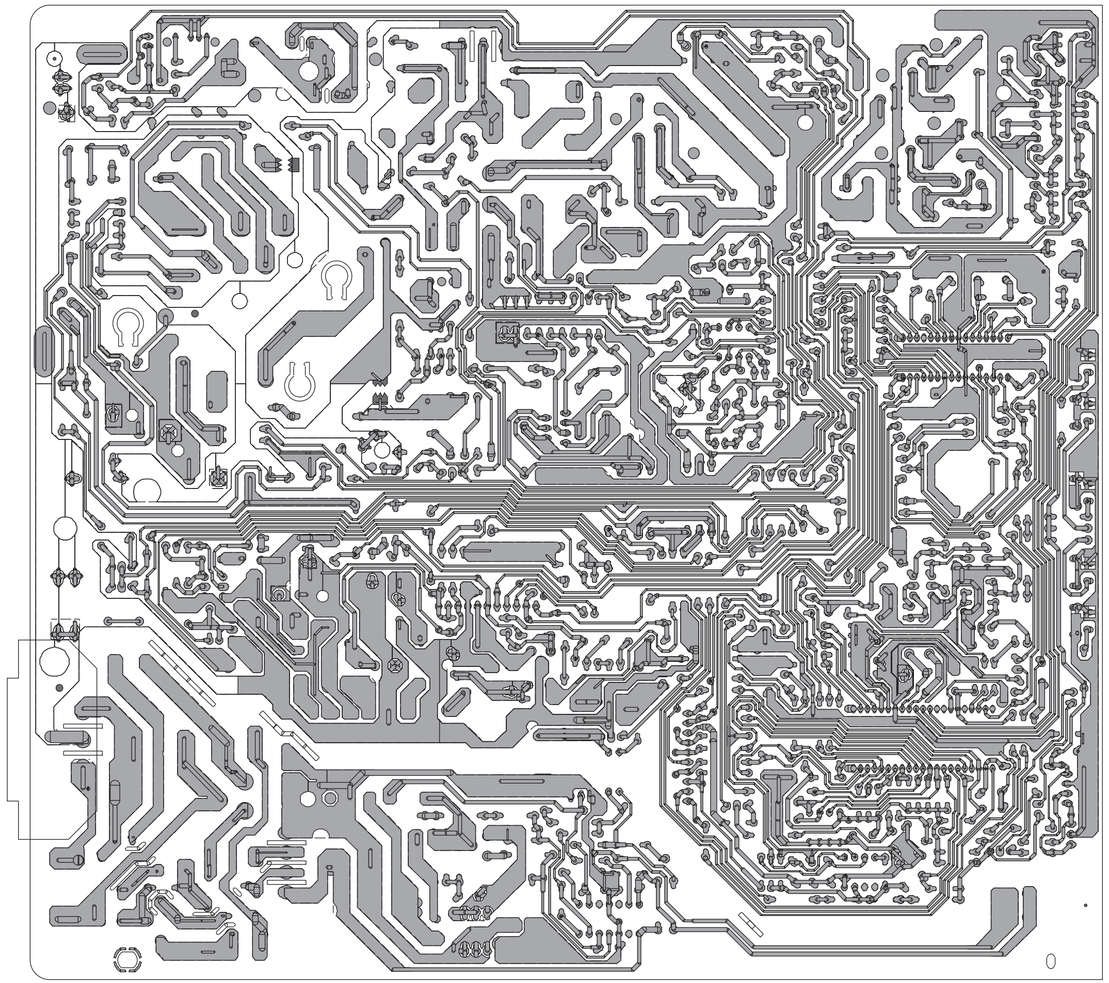


1 V/div AC
5 uS/div

Main Panel C.B.A.(B) - copper track side view

54321hmc

54321cus (copper track)



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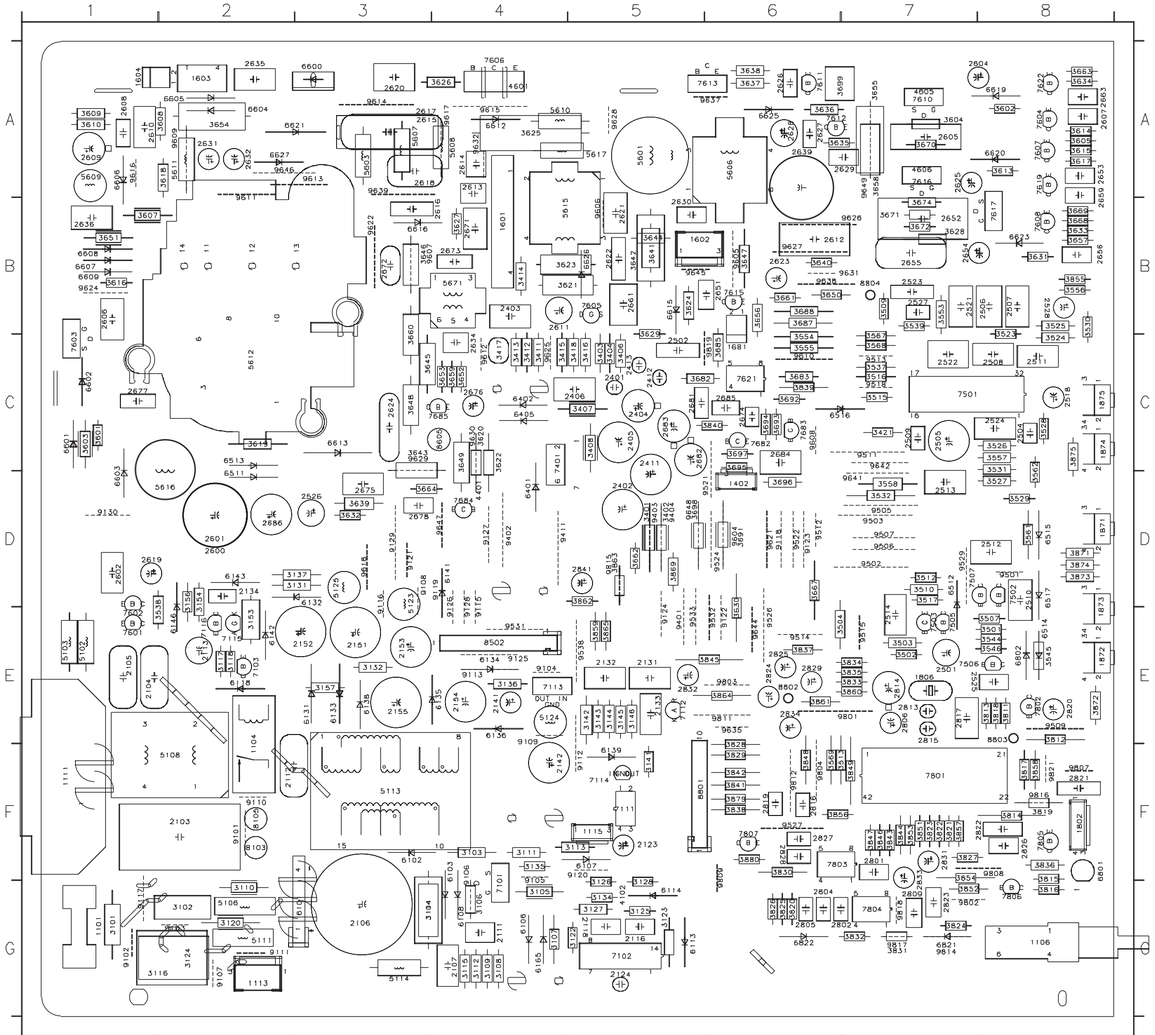
54321hmc

54321cus (copper track)

Main Panel C.B.A.(B,C) - copper track side view



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# REF	LABEL	SIDE																						
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1104	F2	B	2601	D2	B	2826	F8	B	3514	C7	B	3650	B6	B	6512	D7	B	3852	G7	B	6512	D7	B	6512	D7	B
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2513	D7	B	2805	G6	B	3414	B4	B	3635	A6	B	3836	F8	B	7617	B8	B	6133	E3	B	7617	B8	B	7617	B8	B
2514	E7	B	2806	E7	B	3415	C4	B	3636	A6	B	3837	E6	B	7619	A8	B	6134	E4	B	7619	A8	B	7619	A8	B
2518	C8	B	2809	G7	B	3416	C5	B	3637	A6	B	3838	F6	B	7621	C6	B	6135	E4	B	7621	C6	B	7621	C6	B
2521	B7	B	2813	E7	B	3417	C4	B	3638	A6	B	3839	C6	B	7622	A8	B	6136	E4	B	7622	A8	B	7622	A8	B
2522	C7	B	2814	E7	B	3418	C5	B	3639	D3	B	3840	C6	B	7682	C6	B	6138	E3	B	7682	C6	B	7682	C6	B
2523	B7	B	2815	E7	B	3421	C7	B	3640	B6	B	3841	F6	B	7683	C6	B	6139	F5	B	7683	C6	B	7683	C6	B
2524	C8	B	2816	F6	B	3501	E8	B	3641	B5	B	3842	F6	B	7684	D4	B	6141	D4	B	7684	D4	B	7684	D4	B
2525	E7	B	2817	E7	B	3502	E7	B	3642	B5	B	3843	F7	B	7685	C4	B	6142	E2	B	7685	C4	B	7685	C4	B
2526	D3	B	2819	F6	B	3503	E7	B	3643	C3	B	3844	F7	B	7801	F7	B	6143	D2	B	7801	F7	B	7801	F7	B
2527	B7	B	2820	E8	B	3504	E6	B	3644	B5	B	3845	E6	B	7802	E8	B	6146	E2	B	7802	E8	B	7802	E8	B
2528	B8	B	2821	F8	B	3507	E8	B	3645	C3	B	3846	F7	B	7803	F6	B	6165	G4	B	7803	F6	B	7803	F6	B
			2822	F8	B	3509	B7	B	3646	B3	B	3847	F7	B	7804	G7	B	6401	D4	B	7804	G7	B	7804	G7	B
			2823	G7	B	3510	D7	B	3647	B6	B	3848	F6	B	7805	F8	B	6402	C4	B	7805	F8	B	7805	F8	B
			2824	E6	B	3512	D7	B	3648	C3	B	3849	F7	B	7806	G8	B	6405	C4	B	7806	G8	B	7806	G8	B

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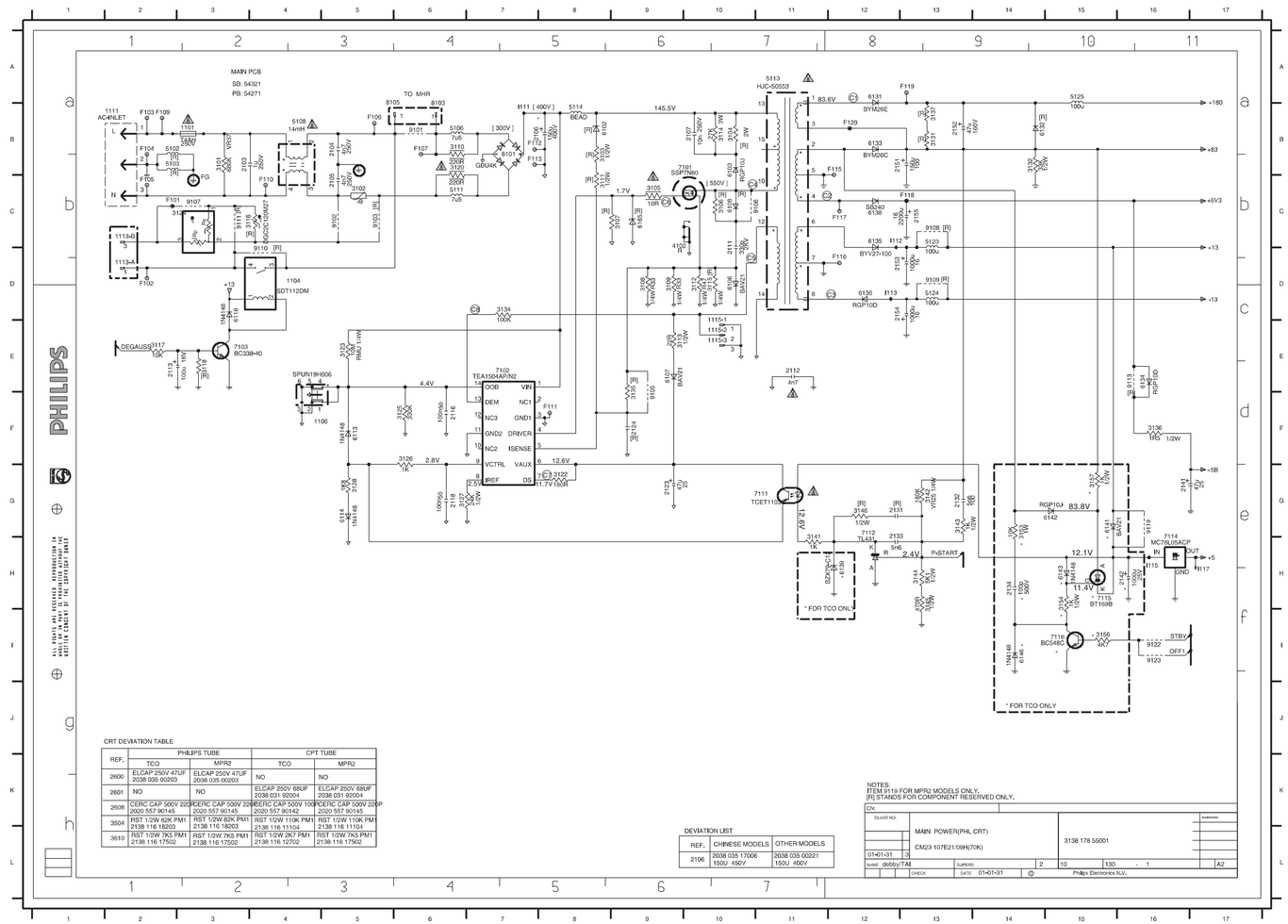
Power Supply - Main Panel Schematic diagram

C



CRT DEVIATION TABLE

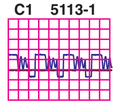
REF.	PHILIPS TUBE		CPT TUBE	
	TCO	MPR2	TCO	MPR2
2600	ELCAP 250V 47UF 2038 035 00203	ELCAP 250V 47UF 2038 035 00203	NO	NO
2601	NO	NO	ELCAP 250V 68UF 2038 031 50004	ELCAP 250V 68UF 2038 031 50004
2608	CERC CAP 500V 220P 2020 557 90145	CERC CAP 500V 220P 2020 557 90145	CERC CAP 500V 100P 2020 557 90142	CERC CAP 500V 220P 2020 557 90145
3504	RST 1/2W 82K PM1 2138 116 18203	RST 1/2W 82K PM1 2138 116 18203	RST 1/2W 110K PM1 2138 116 11104	RST 1/2W 110K PM 2138 116 11104
3510	RST 1/2W 7K5 PM1 2138 116 17502	RST 1/2W 7K5 PM1 2138 116 17502	RST 1/2W 3K7 PM1 2138 116 12702	RST 1/2W 7K5 PM1 2138 116 17502

DEVIATION LIST

REF.	CHINESE MODELS	OTHER MODELS
2106	2038 035 17006 150U 450V	2038 035 00221 150U 400V

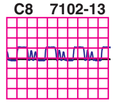
1101 B3 F117 C12
1104 D4 F118 C13
1106 F5 F119 A13
1111 B2 F120 B12
1113-A D2 I111 B1
1113-B C2 I112 C12
1115-1 E10 I113 D12
1115-2 E10 I115 H16
1115-3 E10 I117 H17
2103 B3
2104 B5
2105 C5
2106 B7
2107 B10
2111 C10
2112 E11
2113 E2
2116 F6
2118 G6
2123 G9
2124 F9
2131 G12
2132 G13
2133 H12
2140 G15
2141 G16
2142 H16
2151 B12
2152 B13
2153 D12
2154 D12
2155 C13
3101 B3
3102 C5
3103 B8
3104 B10
3105 C9
3106 C10
3107 C9
3108 D9
3109 D9
3110 C8
3111 C8
3112 D10
3113 E9
3114 B10
3115 D10
3116 C4
3117 E2
3118 E3
3120 B6
3122 G8
3123 E5
3124 C2
3125 F6
3126 F6
3127 G5
3128 G6
3130 B13
3132 B14
3134 D7
3135 F9
3136 F16
3137 B13
3141 H11
3142 G13
3143 G13
3144 H13
3145 H13
3146 G12
3153 G14
3154 H15
3156 B15
3157 B15
4102 D9
5102 B2
5103 B2
5106 B6
5108 B4
5111 C6
5113 A11
5114 B8
5123 C13
5124 D13
5125 A15
6101 B7
6102 B8
6103 B10
6106 D10
6107 E9
6113 G10
6133 F5
6114 G5
6118 D3
6131 A12
6132 B14
6133 B12
6134 E16
6135 C12
6136 D12
6138 C12
6139 H12
6141 G15
6142 G15
6143 H15
6146 H14
6165 G9
7101 D10
7102 E7
7103 E3
7111 G11
7112 G12
7114 G16
7115 H15
7116 B15
8103 A6
8105 A6
9101 B6
9102 C5
9103 C5
9105 F9
9106 C10
9108 C13
9109 D13
9110 D4
9111 C3
9113 E16
9119 G16
9122 I16
9123 I16
F101 C2
F102 D2
F103 B2
F104 B2
F105 C2
F106 B5
F107 B6
F109 B2
F110 C3
F111 F4
F112 B7
F113 B7
F115 B12
F116 D12

C1 5113-1



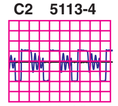
100 V/div AC
5 uS/div

C8 7102-13



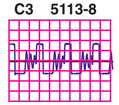
2 V/div AC
5 uS/div

C2 5113-4



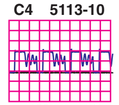
5 V/div AC
5 uS/div

C3 5113-8



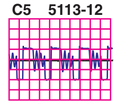
10 V/div AC
5 uS/div

C4 5113-10



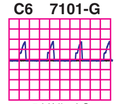
100 V/div AC
5 uS/div

C5 5113-12



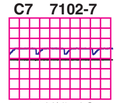
10 V/div AC
5 uS/div

C6 7101-G



5 V/div AC
5 uS/div

C7 7102-7



10 V/div AC
5 uS/div

Key Control Schematic diagram

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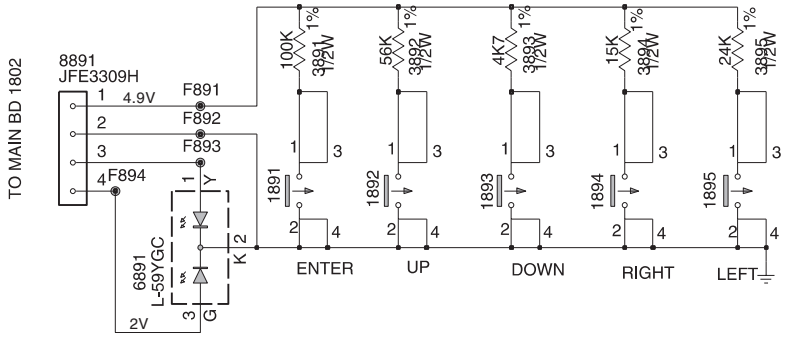
1891
1892
1893
1894
1895
3891
3892
3893
3894
3895
6891
8891
F891
F892
F893
F894

KEY CONTROL BOARD

SB: 53021
PB: 54271

D



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CN:					
CLASS NO.	CM23 107S21/20C		3138 178 55871		-------
01-01-31	3	KEY CONTROL			
NAME TM Hsiao	SUPERS	1	10	130 - 1	A4
CHECK	DATE 01-01-31	© Philips Electronics N.V.			

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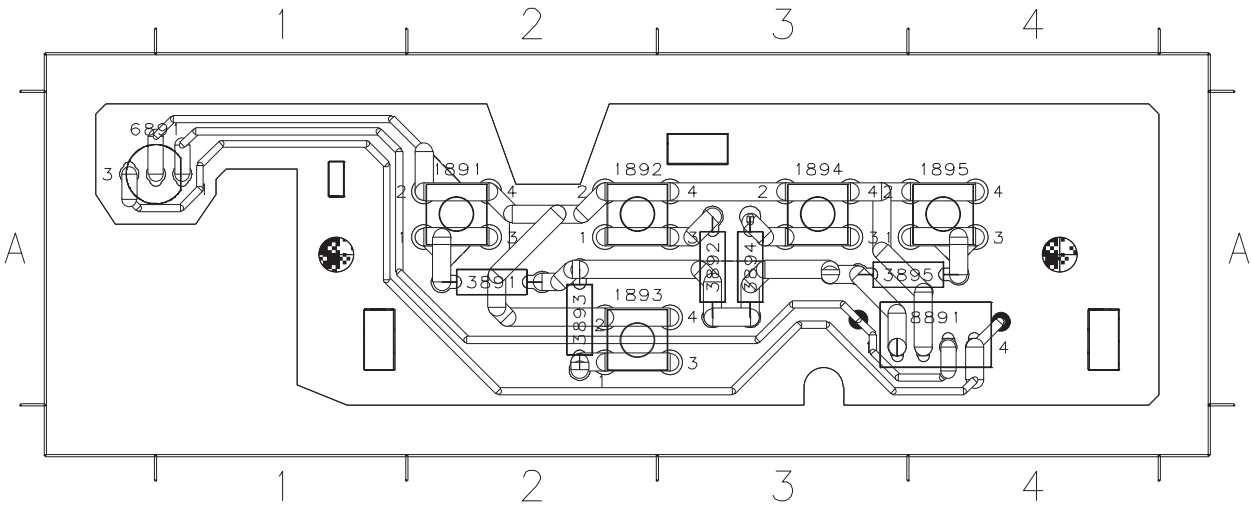
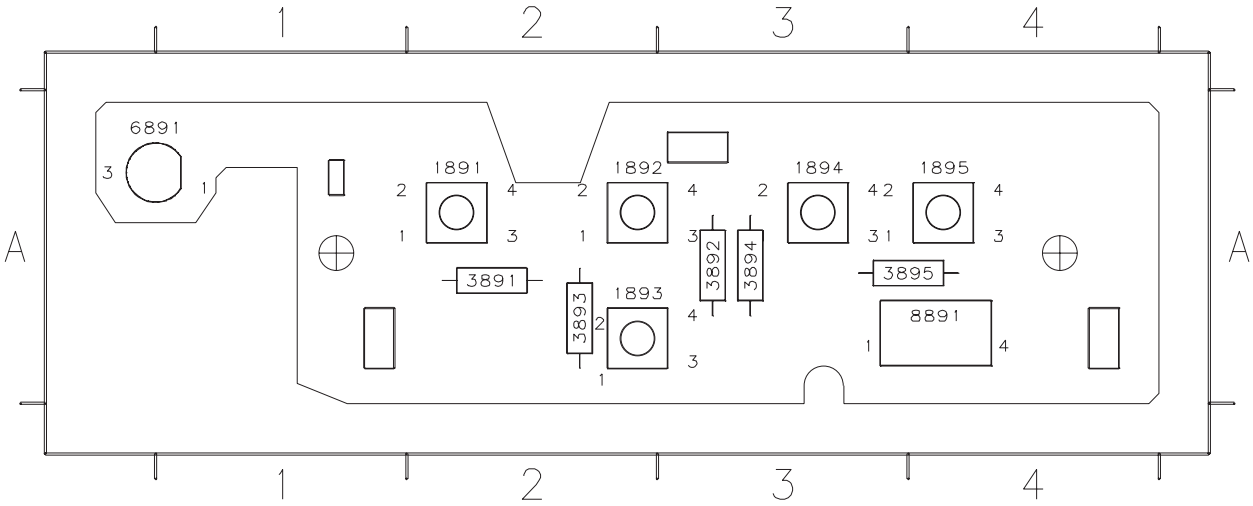
Key Control Panel C.B.A.(D)

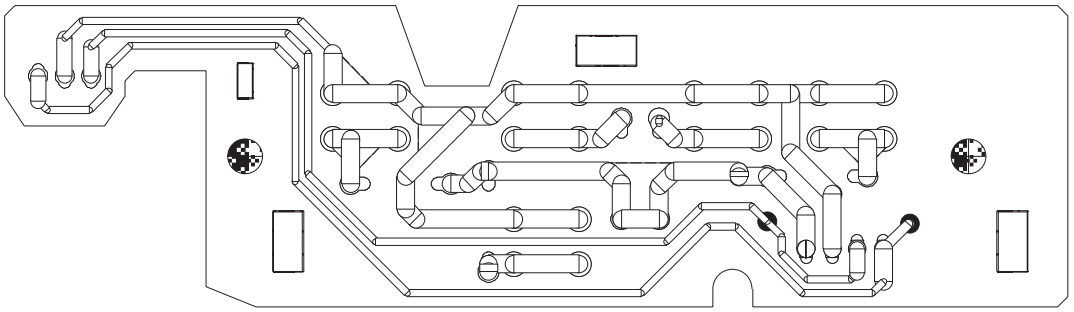


1891	A2	B
1892	A2	B
1893	A2	B
1894	A3	B
1895	A4	B
3891	A2	B
3892	A3	B
3893	A2	B
3894	A3	B
3895	A3	B
6891	A1	B
8891	A4	B

53022cus

53022hmc





0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

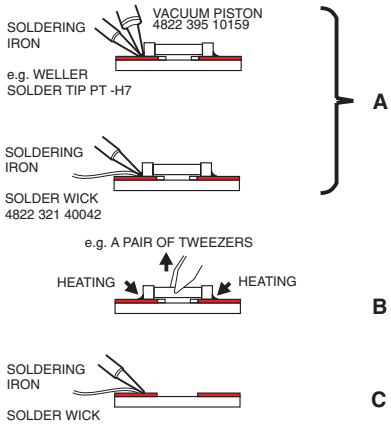
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

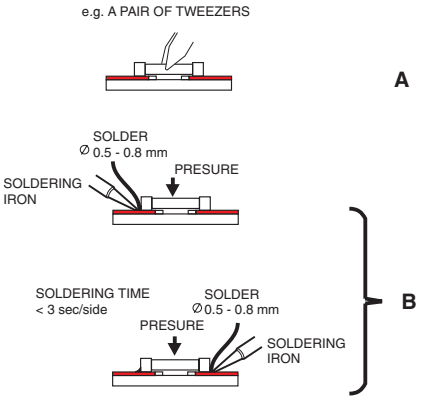
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

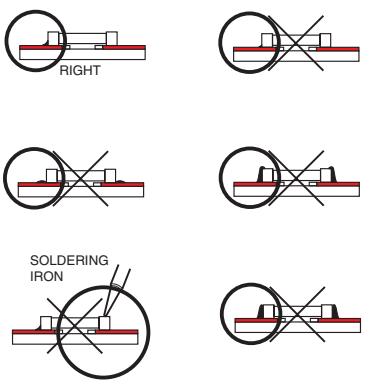
Fig. 2 MOUNTING



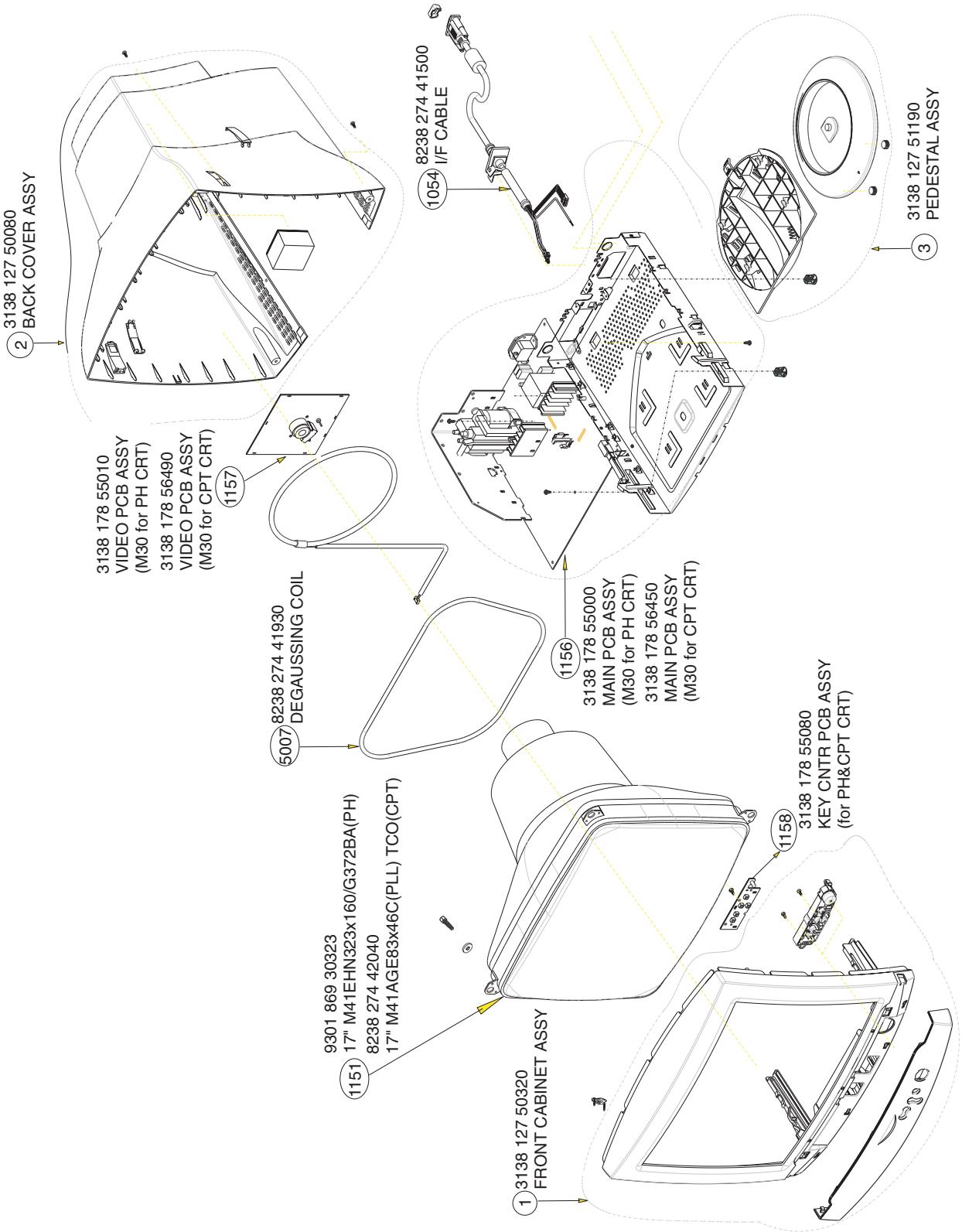
2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples



Exploded view



Recommended Parts List

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Recommended parts list of 107E21/09H (M30)
(Please refer to exploded view for the cross-reference check of some items.)

1	313812750320	FRONT CABINET ASSY
2	313812750080	BACK COVER ASSY
3	313812751190	PEDESTAL ASSY
4	313812750330	CHIN ASSY
47	313810454650	BUTTON-POWER
49	313810454660	BUTTON-FUNCTION
51	313810454080	SCREW COVER
178	313810540010	SETTING UP GUIDE
450	313810658640	CARTON
451	313810656350	CUSHION - LEFT
452	313810656340	CUSHION - RIGHT
454	313810656580	PE BAG
601	313811702650	E-D.F.U ASSY-W/O V/E
1053 ▲	313817876550	MAINS CORD
1054	823827441500	I/F CABLE
1101 ▲	242208600208	FUSE T4AH 250V
1104 ▲	242213207402	RELAY SDT -SS-112DM
1106 ▲	243812800183	SWITCH-POWER
1151 ▲	930186930323	CRT 17" M41EHN 323X160/G372BA (Philips CRT)
1151 ▲	823827442040	CRT 17" TCO M41AGE83X46C(PLL) (CPT CRT)
1156	313817855000	M30(107E)M-P MAIN PCB ASSY5427 (for Philips CRT)
1156	313817856450	M30(107E)M-C MAIN PCB ASSY5427 (for CPT CRT)
1157	313817855010	M30(107E)-P VIDEO PCB ASSY (for Philips CRT)
1157	313817856490	M30(107E)-C VIDEO PCB ASSY (for CPT CRT)
1158	313817855080	M30(107E)-KEY CNTR PCB ASSY (for Philips & CPT CRT)
1258	313817855020	EEPROM ASSY -M30 107E (7803) (for Philips CRT)
1258	313817856100	EEPROM ASSY -M30 107E (7803) (for CPT CRT)
1715	243803100312	CRT SOCKET
1806	243854300061	RES XTL 12MHZ 30P HC49U B
5007 ▲	823827441930	DEGAUSSING COIL (HJC-K9255F)
5106	313817879160	BAR COIL 7U5H PM10
5108 ▲	313812871290	LINE FILTER
5113 ▲	823827441550	POWER TRANSFORMER (TDK)
5114	243853598028	IND FXD BEAD EMI 1 MHZ 75R R
5125	242253594971	DRUM CHOKE COIL 1 UH T
5301	243853598025	IND FXD BEAD EMI 1 MHZ 60R R
5303	243853598026	IND FXD BEAD EMI 1 MHZ 35R R
5304	242253597725	HIGH FREQ.CHOKE 0.22UH PM10
5601	823827441820	LINEARITY COIL (HL2455H-062N)
5606	313817874760	BRIDGE COIL 110UH PM6
5609	242253594973	DRUM CHOKE COIL 3.7MHB T
5611	242253597416	COIL 33MUH PM10
5612 ▲	823827441490	L.O.T.(SAMPO)-DFBTPH 46D56R
5615	313812875440	HOR. DRIVER TRANSFORMER
5616	313817875990	DRUM CHOKE COIL 6MH
5671	313816877380	DAF XFMR (SRW16EC-T119V 3)
5702	242253597608	COIL 1MUH8 PM10
5721	313817874200	COIL 0.68uH PM10
5771	313810874950	BAR COIL 5UH PM10
6101	932205814682	BRIDGE GBU4K
7101	932213500687	MOS TRANSTER SSP7N60A
7102	935264503112	IC TEA1504AP/N2 14P
7111	932214014667	PHOTOCOUPLER TCET1103G 4P
7112	933771100686	IC TL431CLPRP 3P
7114	933510720686	IC MC78L05ACPRP 3P
7301	932216675682	IC LM1267
7304	932216297682	OSD IC MTV030N-19(Programmed)
7401	933922940682	IC TDA8172
7501	935267455112	IC TDA4841PS-V3 32P
7502	319802043310	TRANS PH2369 (UAW)
7603	932211031687	FET POW MTP5P25 (MOTAO L)
7613	931101033687	TRA MOW TIP122
7616	932214232687	FET POW IRF640
7617	932214360687	TRANS IRF630M
7621	933717590682	IC LM358N 8P (ON)
7685	934025870126	TRA SIG MPSA44

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Spare Parts List

Parts indicated on exploded view: model: 107E21/09H

1	313812750320	FRONT CABINET ASSY
2	313812750080	BACK COVER ASSY
3	313812751190	PEDESTAL ASSY
4	313812750330	CHIN ASSY
44	313810448610	BASE
47	313810454650	BUTTON-POWER
49	313810454660	BUTTON-FUNCTION
51	313810454080	SCREW COVER
52	313810450670	LENS-POWER
53	313810456710	SWIVEL
1151▲	930186930323	CRT 17" M41EHN 323X160/G372BA
1151▲	823827442040	CRT 17" TCO M41AGE83X46C(PLL)

Various

178	313810540010	SETTING UP GUIDE
450	313810658640	CARTON
451	313810656350	CUSHION - LEFT
452	313810656340	CUSHION - RIGHT
454	313810656580	PE BAG
601	313811702650	E-D.F.U ASSY-W/O V/E

Accessories

1053▲	313817876550	MAINS CORD
1054	823827441500	I/F CABLE

1156 Main Panel

1156	313817855000	M30(107E)M-P MAIN PCB ASSY5427
1156	313817856450	M30(107E)M-C MAIN PCB ASSY5427
1101▲	242208600208	FUSE T4AH 250V
1104▲	242213207402	RELAY SDT -SS-112DM
1106▲	243812800183	SWITCH
1715	243803100312	CRT SOCKET
1258	313817855020	EEPROM ASSY -M30 107E (7803)
1258	313817856100	EEPROM ASSY -M30 107E (7803)

⊣⊢

2103	202030790006	ACROSS LINE CAP 250V 1UF PM20
2104	202055490139	CERSAF NSB 250V S 4N7 PM20 B
2105	202055490139	CERSAF NSB 250V S 4N7 PM20 B
2106	203803517006	ELCAP LS 450V150U PM20 B
2107	203830250229	CAP MPOL 250V S 10N PM5 A
2111	225260214316	CER2 DC X7R 2KV S 330P PM10A
2112▲	202055490138	CERSAF NSA 250V S 4N7 PM20 B
2113	203803453101	ELCAP S 16V 1UF PM20 2E
2116	225279508453	CCAP DC Y5V 1N 50V S Z A
2118	225279508453	CCAP DC Y5V 1N 50V S Z A
2123	203803454479	ELCAP S 25V 47UF PM20 2ET
2132	203830150143	PPN 1V 5N6 PM5 2E
2133	203830150143	PPN 1V 5N6 PM5 2E
2141	203803454479	ELCAP S 25V 47UF PM20 2ET
2151	203803500032	ELCAP 150UF 1V PM20 2EB
2152	203803192479	ELCAP 160V 47UF PM20 105DEG C
2153	203803135102	ELCAP S 16V 10UF PM20 2ET
2154	203803135102	ELCAP S 16V 10UF PM20 2ET
2155	203803511212	CAP REA 22U 16V 1326
2301	225279508453	CCAP DC Y5V 1N 50V S Z A
2302	225279508453	CCAP DC Y5V 1N 50V S Z A
2303	225279508453	CCAP DC Y5V 1N 50V S Z A
2304	202055290607	CERC DC NPO 50V 220P PM5 2ET
2305	202055290607	CERC DC NPO 50V 220P PM5 2ET
2307	225279508453	CCAP DC Y5V 1N 50V S Z A
2308	225232512104	CC X7R 50V 1N K 2E TL
2309	225279508453	CCAP DC Y5V 1N 50V S Z A
2310	225232512104	CC X7R 50V 1N K 2E TL
2311	225232512104	CC X7R 50V 1N K 2E TL
2312	225232512104	CC X7R 50V 1N K 2E TL
2313	202055290605	CERC DC NPO 50V 150P PM5 2ET
2314	202055290608	CERC DC NP0 50V 270P PM5A
2315	202055290605	CERC DC NPO 50V 150P PM5 2ET
2316	225250508444	CERC CAP 4.7P 50V COG 2E T
2317	225250508444	CERC CAP 4.7P 50V COG 2E T
2318	225250508444	CERC CAP 4.7P 50V COG 2E T
2319	202055290598	CERC DC NPO 50V 47P PM5 2
2322	202055290821	CERC DC 50V 10N PM10T
2323	202055290821	CERC DC 50V 10N PM10T
2324	203803453221	ELCAP S 16V 220UF PM20 2E
2326	225279508453	CCAP DC Y5V 1N 50V S Z A
2330	203830250095	MEF CAP 1V 1N PM10 2E
2332	203830250095	MEF CAP 1V 1N PM10 2E
2333	203830250095	MEF CAP 1V 1N PM10 2E
2335	203803458229	ELCAP S 1V 22UF PM20 2E T
2341	225232512104	CC X7R 50V 1N K 2E TL
2342	225279508453	CCAP DC Y5V 1N 50V S Z A
2349	225279508453	CCAP DC Y5V 1N 50V S Z A
2401	202055290803	CERC DC 50V 470P PM10 2E
2402	203803453471	ELCAP VX 470UF M 16V 2E 10X12.
2403	203830250094	MEF CAP 1V47N PM10 2E
2405	203803425221	ELCAP S 35V 220UF PM20 2E B
2406	203830250099	POLCAP 1V 470N PM10 2E
2411	203803453471	ELCAP VX 470UF M 16V 2E 10X12.
2412	202055290807	CERC DC 50V 1N0 PM10
2413	202055290807	CERC DC 50V 1N0 PM10
2501	203803454101	ELCAP S 25V 1UF PM20 2E
2502	202055290821	CERC DC 50V 10N PM10T
2504	202055290597	CERC DC NPO 50V 39P PM5 2ET
2505	203803350019	ELCAP VZ 10UF M 16V 10X16 T
2506	203830150186	PPN 1V 8N2 PM5T
2507	203830250212	POLCAP 1V 1N PM5 2ET
2508	203830250218	MEF CAP 10N 1V PM2 2E
2509	202055290603	CERC DC NPO 50V 1P PM5 2ET
2511	203830150143	PPN 1V 5N6 PM5 2E
2512	203830250093	MEF CAP 1V22N PM10 2E
2513	203830250094	MEF CAP 1V47N PM10 2E
2518	203803453229	ELCAP S 16V 22UF PM20 2E
2521	203830250212	POLCAP 1V 1N PM5 2ET
2522	203830250125	MEF CAP 1V 220N PM10 2E
2523	202055290821	CERC DC 50V 10N PM10T
2524	203830150135	PPN CAP 2N2 1V PM5
2525	225279508453	CCAP DC Y5V 1N 50V S Z A
2526	203803458109	ELCAP S 1V 10UF PM20 2E T
2527	202055290603	CERC DC NPO 50V 1P PM5 2ET
2528	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2600	203803500203	ELCAP 250V S 47U PM20VTB
2601	203803192004	ELCAP S 250V 68UF PM20 3E
2602	203830250229	CAP MPOL 250V S 10N PM5 A
2604	203803456108	ELCAP S 50V 1UF PM20 2ET
2605	203830100223	MPS CAP 150N 250V PM5
2606	203830250103	POLCAP 1V 33N 2E PM10
2608	202055790145	CERC DC 5V 220P PM10
2609	203803550209	ELCAP SH 250V S 3U3 PM20 A
2610	203830250229	CAP MPOL 250V S 10N PM5 A
2611	203803195005	ELCAP S 160V 1UF PM20 2ET
2612	203830100225	MPS CAP 270N 250V PM5
2613	225260214216	CERCAP DC 2KV 220P K X7R T
2614	225260214216	CERCAP DC 2KV 220P K X7R T
2615	203830100119	PPS CAP 1K6V 4N7 PM5
2616	202055790129	CERC PL 5V 3N3 PM10
2618	222237590617	CAP KP/MKP 630V 6N8 PM5 4E
2619	203803454479	ELCAP S 25V 47UF PM20 2ET
2620	203830250121	MEF CAP 1V 150N 2E PM10
2622	202055290821	CERC DC 50V 10N PM10T
2623	203803456478	ELCAP S 50V 4UF7 PM202E
2624	223555900099	CERC CAP 2KV 10N PM20 4E
2625	203803456108	ELCAP S 50V 1UF PM20 2ET
2626	202055790146	CCAP DC 5V 470P K T
2627	202055290834	CCAP DC 50V 22N Z A
2628	203803453101	ELCAP S 16V 1UF PM20 2E
2630	225279508453	CCAP DC Y5V 1N 50V S Z A
2632	203803454109	ELCAP S 25V 10UF PM20 2ET
2634	225271214016	LOW LOSS 0.2% Y5R 2KV 1P K 2
2635	203830250229	CAP MPOL 250V S 10N PM5 A
2639	203803300008	ELCAP BP 63V S 3U3 PM20 B
2651	225279508453	CCAP DC Y5V 1N 50V S Z A
2652	203830100228	MPS CAP 680N 250V PM5
2654	203803456108	ELCAP S 50V 1UF PM20 2ET
2655	203830100224	MPS CAP 220N 250V PM5 7E
2661	203830250125	MEF CAP 1V 220N PM10 2E
2671	203830250142	MEF CAP 22N 250V PM10 2E
2672	225264133527	CERC Z5U 1KV 5N63EB
2673	202055790153	CERC DC 5V 2N2 PM10
2674	202055290804	CERC DC 50V 560P PM10
2675	203830250218	MEF CAP 10N 1V PM2 2E
2676	203803456478	ELCAP S 50V 4UF7 PM202E
2677	202055790153	CERC DC 5V 2N2 PM10
2678	225279508453	CCAP DC Y5V 1N 50V S Z A
2681	202055290834	CCAP DC 50V 22N Z A
2682	203803453221	ELCAP S 16V 220UF PM20 2E
2683	203803453221	ELCAP S 16V 220UF PM20 2E
2684	203830250212	POLCAP 1V 1N PM5 2ET
2685	202055290834	CCAP DC 50V 22N Z A
2686	203803500101	ELCAP 250V 22U PM20 2E VT
2786	225260214416	CERC CAP DC 2KV 470P PM10 X7R
2801	225279508453	CCAP DC Y5V 1N 50V S Z A
2804	202055290603	CERC DC NPO 50V 1P PM5 2ET
2805	202055290603	CERC DC NPO 50V 1P PM5 2ET
2806	203803456478	ELCAP S 50V 4UF7 PM202E
2813	202055290594	CERC DC NPO 50V 22P PM5 2ET
2814	203803453221	ELCAP S 16V 220UF PM20 2E
2815	202055290594	CERC DC NPO 50V 22P PM5 2ET
2816	202055290603	CERC DC NPO 50V 1P PM5 2ET
2819	202055290603	CERC DC NPO 50V 1P PM5 2ET
2820	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2822	202055290835	CERC DC 50V 47N P80M20 2E0 2E
2825	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2826	225279508453	CCAP DC Y5V 1N 50V S Z A
2827	202055290603	CERC DC NPO 50V 1P PM5 2ET
2828	202055290603	CERC DC NPO 50V 1P PM5 2ET
2829	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2831	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2833	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2834	203803456228	ELCAP S 50V 2UF2 PM20 2ET
2841	203803456228	ELCAP S 50V 2UF2 PM20 2ET

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3101	232224213684	METGLAZ RST A VR37 680K PM5
3102	213866000027	NTC DC SCK-104 S 10R PM15
3105▲	232220733109	RST MFLM NFR25H S 10R PM5
3108	213811273337	MET RES 0.33R 1/4W PM1
3109	213811273337	MET RES 0.33R 1/4W PM1
3110▲	232220733221	RST NFR25H 220R PM5
3112	213811273477	CARBRST R25 0.47R PM5
3113	213811612209	RST MFLM MF50SA22RPM1A
3114	212010592452	RST MOX 3W RSS S 27K PM5 B
3117	213810113103	RST CRB CR12A10K PM5 A
3120▲	232220733221	RST NFR25H 220R PM5
3122	213810113181	RST CRB CR12 A180RPM5 A
3123	213810500441	METGLAZ RST RMU 1/4W 10M PM1 T
3124	213866000036	PTC 9 OHM
3125	213810113334	RST CRB CR12A330KPM5A
3126	213810113102	RST CRB CR12 A1K PM5A
3127	213811612403	RST MFLM MF50SA24KPM1A
3128	213810113182	RST CRB CR12 A1K8PM5 A
3132	213811613303	RST MFLM MF50SA33KPM1A
3134	213810113104	RST CRB CR12A 1K PM5 A
3136	213811604158	RST MFLM MF50SA1R5 PM5A
3141	213810113102	RST CRB CR12 A1K PM5A
3142	232224181804	RST MFLM MF50SA 180KPM1A
3143	213811611002	RST MFLM MF50SA 1K PM1 A
3144	213811615102	RST MFLM MF50SA5K1PM1A
3145	213811614701	RST MFLM MF50SA470R PM1A
3301	213810113759	RST CRB CR12A75RPM5A
3302	213810113759	RST CRB CR12A75RPM5A
3303	213810113759	RST CRB CR12A75RPM5A
3305	213810113472	RST CRB CR12A4K7PM5A
3306	213810113472	RST CRB CR12A4K7PM5A
3309	213810113102	RST CRB CR12 A1K PM5A
3310	213810113102	RST CRB CR12 A1K PM5A
3311	213810113102	RST CRB CR12 A1K PM5A
3312	213810113479	RST CRB CR12A47RPM5A
3313	213810113479	RST CRB CR12A47RPM5A
3314	213810113479	RST CRB CR12A47RPM5A
3315	213810113103	RST CRB CR12A10K PM5 A
3316	213810113101	RST CRB CR12 A 1R PM5A
3318	213810113102	RST CRB CR12 A1K PM5A
3319	213810113103	RST CRB CR12A10K PM5 A
3325	213810113103	RST CRB CR12A10K PM5 A
3327	213810113562	RST CRB CR12A5K6PM5A
3328	213810113332	RST CRB CR12A3K3PM5A
3329	213810113562	RST CRB CR12A5K6PM5A
3330	213810113105	RST CRB CR12A1M PM5 A
3332	213810113101	RST CRB CR12 A 1R PM5A
3333	213810113101	RST CRB CR12 A 1R PM5A
3334	213810113221	RST CRB CR12A220RPM5 A
3354	213810100369	CABON RES. CR-12 1/6W 0 OHM
3401▲	232220733478	MET FLM NFR25H 4R7 PM5
3402▲	232220733478	MET FLM NFR25H 4R7 PM5
3403	213810113471	RST CRB CR12A470RPM5A
3404	213810113471	RST CRB CR12A470RPM5A
3406	213811612202	RST MFLM MF50SA2K2PM1A
3411	213811614301	RST MFLM MF50SA 430RPM1A
3412	213811604248	RST MFLM MF-50S A 2R4 PM5A
3413	213811604278	RST MFLM MF50SA2R7 PM5 A
3414	213811611009	RST MFLM MF50SA10RPM1 A
3415	213811604438	RST MFLM MF-50S A 4R3 PM5A
3416	213811612202	RST MFLM MF50SA2K2PM1A
3418	213811604438	RST MFLM MF-50S A 4R3 PM5A
3421	213810113221	RST CRB CR12A220RPM5 A
3501	213810113183	RST CRB CR12A18KPM5 A
3502	213810113683	RST CRB CR12A68KPM5A
3503	213811616203	RST MFLM MF50SA62KPM1A
3504	213811611104	RST MFLM MF50SA 110KPM1A
3507	213810113154	RST CRB CR12A150K PM5 A
3509	213810113222	RST CRB CR12A2K2PM5 A
3510	213811617502	RST MFLM MF50SA7K5PM1A
3513	213810113471	RST CRB CR12A470RPM5A
3515	213810113183	RST CRB CR12A18KPM5 A
3516	213810113104	RST CRB CR12A 1K PM5 A
3523	213810113332	RST CRB CR12A3K3PM5A
3524	213811611202	RST MFLM MF50SA1K2PM1A
3525	213811612802	RST MFLM MF50SA2K8PM1A
3526	213811611203	RST MFLM MF50SA 12KPM1A
3527	213811614702	RST MFLM MF50SA4K7PM1A
3528	213810113822	RST CRB CR12A8K2PM5A
3529	213810113124	RST CRB CR12A120K PM5 A
3530	213810113101	RST CRB CR12 A 1R PM5A
3531	213811612703	RST MFLM MF50SA27KPM1A
3532	213811611004	RST MFLM MF50SA1K PM1 A
3537	213810113222	RST CRB CR12A2K2PM5 A
3538	213811611502	RST MFLM MF50SA1K5PM1A
3539	213810113101	RST CRB CR12 A 1R PM5A
3544	213810113183	RST CRB CR12A18KPM5 A
3545	213811612202	RST MFLM MF50SA2K2PM1A
3546	213810113183	RST CRB CR12A18KPM5 A
3553	213811612203	RST MFLM MF50SA22KPM1A

3554 213811273102 CARBRST FLM CR25 1K0 PM5 5
3555 213811273102 CARBRST FLM CR25 1K0 PM5 5
3556 213810113332 RST CRB CR12A3K3PM5A
3557 213811613303 RST MFLM MF50SA33KPM1A
3558 232224182704 METGLAZ RST VR25 270K PM1
3561 213810113393 RST CRB CR12A39KPM5A
3562 213810113823 RST CRB CR12A82KPM5A
3567 213810113101 RST CRB CR12 A 1R PM5A
3568 213810113101 RST CRB CR12 A 1R PM5A
3569 213810113471 RST CRB CR12A470RPM5A

3601 213810113223 RST CRB CR12A22KPM5 A
3602 213810113103 RST CRB CR12A10K PM5 A
3603▲232220733689 RST FUSE NFR25H S 68R PM5T
3604 213811614703 RST MFLM MF50SA 47KPM1A
3607▲232220733108 MET FLM RST NFR25H 1R0 PM5T
3608 213811611003 RST MFLM MF50SA10K PM1 A
3609 213811604475 RST MFLM MF50S A 4M7 PM5
3610 213811617502 RST MFLM MF50SA7K5PM1A
3613 213810113103 RST CRB CR12A10K PM5 A
3614 213810113223 RST CRB CR12A22KPM5 A

3616 213810113124 RST CRB CR12A120K PM5 A
3617 213810113223 RST CRB CR12A22KPM5 A
3618 213811614704 RST MFLM MF50SA 470KPM1A
3619 213811273102 CARBRST FLM CR25 1K0 PM5 5
3620 213810500437 METGLAZ RST RMU 1/4W 1.5M PM1
3621 212010592157 MET FLM RST 2W 150R PM5 6EB
3622 213810500437 METGLAZ RST RMU 1/4W 1.5M PM1
3623 212010592167 MEF FLM RST 2W 8.2K PM5 RSS B
3624 213811611003 RST MFLM MF50SA10K PM1 A
3625 213810500099 RES.3W/1.8OHM PM5/L30

3626 213811611009 RST MFLM MF50SA10RPM1 A
3627 213810113102 RST CRB CR12 A1K PM5A
3628 213811614703 RST MFLM MF50SA 47KPM1A
3629 213810113101 RST CRB CR12 A 1R PM5A
3630 213810113102 RST CRB CR12 A1K PM5A
3631 213810113103 RST CRB CR12A10K PM5 A
3632 213810113393 RST CRB CR12A39KPM5A
3635 213810113223 RST CRB CR12A22KPM5 A
3636 213811615102 RST MFLM MF50SA5K1PM1A
3637 213811611202 RST MFLM MF50SA1K2PM1A

3638 213811611203 RST MFLM MF50SA 12KPM1A
3639 232224181205 METGLAZ RST VR251M2 PM1
3640 213810113821 RST CRB CR12A820RPM5A
3642 212010592403 MET FLM RSS1J 1W 180R PM5 L125
3644 213811612009 RES MF50S 1/2W 20RPM1
3645 232224213104 METGLAZ RST A VR37 1K
3647 213811604568 RST MFLM MF50SA5R6 PM5 A
3648 232224213475 METGLAZ RST A VR37 4M7 PM5T
3650 213810113221 RST CRB CR12A220RPM5 A
3651▲232220533109 RST FUSE NFR25 10R PM5

3652 213810113182 RST CRB CR12 A1K8PM5 A
3653 213810113473 RST CRB CR12A47KPM5A
3654 212010592186 680R 3W RES MOF
3656 213811604568 RST MFLM MF50SA5R6 PM5 A
3657 213810113223 RST CRB CR12A22KPM5 A
3658 212010592355 MET FLM RST 2W 47R PM5 6E
3659 213810113102 RST CRB CR12 A1K PM5A
3660 232224213434 METGLAZ RST A VR37 430K PM5T
3661 213810113682 RST CRB CR12A6K8PM5A
3662 213810113103 RST CRB CR12A10K PM5 A

3664 213810113393 RST CRB CR12A39KPM5A
3667 213810113393 RST CRB CR12A39KPM5A
3670 213810113154 RST CRB CR12A150K PM5 A
3671 213810113154 RST CRB CR12A150K PM5 A
3672 213810113154 RST CRB CR12A150K PM5 A
3674 213811614703 RST MFLM MF50SA 47KPM1A
3682 213811616203 RST MFLM MF50SA62KPM1A
3683 213811611004 RST MFLM MF50SA1K PM1 A
3685 213811611804 RST MFLM MF50SA 180KPM1A
3687 213811615102 RST MFLM MF50SA5K1PM1A

3688 213811612202 RST MFLM MF50SA2K2PM1A
3692 213810113103 RST CRB CR12A10K PM5 A
3693 213810113683 RST CRB CR12A68KPM5A
3694 213810113102 RST CRB CR12 A1K PM5A
3695 213810113102 RST CRB CR12 A1K PM5A
3696 213811614709 RST MFLM MF50SA47RPM1A
3697 213810113102 RST CRB CR12 A1K PM5A
3811 213810113103 RST CRB CR12A10K PM5 A
3812 213810113472 RST CRB CR12A4K7PM5A
3814 213810113472 RST CRB CR12A4K7PM5A

3815 213810113221 RST CRB CR12A220RPM5 A
3816 213810113221 RST CRB CR12A220RPM5 A
3818 213810113101 RST CRB CR12 A 1R PM5A
3820 213810113472 RST CRB CR12A4K7PM5A
3821 213810113472 RST CRB CR12A4K7PM5A
3822 213810113472 RST CRB CR12A4K7PM5A
3823 213810113472 RST CRB CR12A4K7PM5A
3825 213810113472 RST CRB CR12A4K7PM5A
3827 213810113103 RST CRB CR12A10K PM5 A
3828 213810113101 RST CRB CR12 A 1R PM5A

3829 213810113101 RST CRB CR12 A 1R PM5A
3830 213810113473 RST CRB CR12A47KPM5A
3833 213810113472 RST CRB CR12A4K7PM5A
3834 213810113332 RST CRB CR12A3K3PM5A
3835 213810113222 RST CRB CR12A2K2PM5 A
3836 213811613303 RST MFLM MF50SA33KPM1A
3837 213810113222 RST CRB CR12A2K2PM5 A
3838 213810113101 RST CRB CR12 A 1R PM5A
3839 213810113562 RST CRB CR12A5K6PM5A
3840 213810113332 RST CRB CR12A3K3PM5A

3841 213810113101 RST CRB CR12 A 1R PM5A
3842 213810113101 RST CRB CR12 A 1R PM5A
3843 213810113472 RST CRB CR12A4K7PM5A
3844 213810113103 RST CRB CR12A10K PM5 A
3847 213810113472 RST CRB CR12A4K7PM5A
3848 213810113103 RST CRB CR12A10K PM5 A
3849 213810113103 RST CRB CR12A10K PM5 A
3851 213810113103 RST CRB CR12A10K PM5 A
3852 213810113153 RST CRB CR12A15K PM5 A
3853 213810113103 RST CRB CR12A10K PM5 A

3854 213810113473 RST CRB CR12A47KPM5A
3855 213810113471 RST CRB CR12A470RPM5A
3856 213810113472 RST CRB CR12A4K7PM5A
3857 213810113472 RST CRB CR12A4K7PM5A
3858 213810113103 RST CRB CR12A10K PM5 A
3859 213810113101 RST CRB CR12 A 1R PM5A
3862 213810113274 RST CRB CR12A270KPM5A
3865 213810113101 RST CRB CR12 A 1R PM5A
3869 213811613303 RST MFLM MF50SA33KPM1A
3879 213810113101 RST CRB CR12 A 1R PM5A
3880 213810113104 RST CRB CR12A 1K PM5 A

5007▲823827441930 DEGAUSSING COIL (HJC-K9255F)
5106 313817879160 BAR COIL 7U5H PM10
5108▲313812871290 LINE FILTER
5111 313817879160 BAR COIL 7U5H PM10
5113▲823827441550 POWER TRANSFORMER (TDK)
5114 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5123 242253594971 DRUM CHOKE COIL 1UH T
5124 242253594971 DRUM CHOKE COIL 1UH T
5125 242253594971 DRUM CHOKE COIL 1UH T
5301 243853598025 IND FXD BEAD EMI 1MHZ 60RR

5303 243853598026 IND FXD BEAD EMI 1MHZ 35R R
5304 242253597725 HIGH FREQ.CHOKE 0.22UH PM10
5305 242253597725 HIGH FREQ.CHOKE 0.22UH PM10
5306 242253597725 HIGH FREQ.CHOKE 0.22UH PM10
5601 823827441820 LINEARITY COIL (HL2455H-062N)
5603 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5606 313817874760 BRIDGE COIL 110UH PM6
5607 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5609 242253594973 DRUM CHOKE COIL 3.7MHB T
5610 243853598028 IND FXD BEAD EMI 1MHZ 75R R

5611 242253597416 COIL 33MUH PM10
5612▲823827441490 L.O.T.(SAMPO)-DFBTPH46D56R
5615 313812875440 HOR. DRIVER TRANSFORMER
5616 313817875990 DRUM CHOKE COIL 6MH
5617 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5671 313816877380 DAF XFMR (SRW16EC-T119V3)

6101 932205814682 BRIDGE GBU4K
6103 933497950683 DIODE RGP10J(GI)
6106 319801010070 DIODE BAV21 (UAW)
6107 319801010070 DIODE BAV21 (UAW)
6113 319801010010 DIODE 1N4148 (UAW)
6114 319801010010 DIODE 1N4148 (UAW)
6118 319801010010 DIODE 1N4148 (UAW)
6131 933818520133 DIO REC BYM26EA(PHSE)A
6133 933818500133 DIODE BYM26C
6134 933751660683 DIODE RGP10D (GI)

6135 933543500133 DIO REC BYV27-1
6136 933751660683 DIODE RGP10D (GI)
6138 932216573673 DIODE SB240
6301 319801025680 DIODE BZX79-C5V6 (UAW)
6302 319801025680 DIODE BZX79-C5V6 (UAW)
6303 319801025680 DIODE BZX79-C5V6 (UAW)
6305 319801010010 DIODE 1N4148 (UAW)
6306 319801010010 DIODE 1N4148 (UAW)
6307 319801010010 DIODE 1N4148 (UAW)
6308 319801010010 DIODE 1N4148 (UAW)

6311 319801010010 DIODE 1N4148 (UAW)
6312 319801010010 DIODE 1N4148 (UAW)
6401 933543500133 DIO REC BYV27-1
6511 319801010070 DIODE BAV21 (UAW)
6513 319801010070 DIODE BAV21 (UAW)
6515 319801010010 DIODE 1N4148 (UAW)
6516 933957760683 DIODE SB140 (GI)
6517 319801010010 DIODE 1N4148 (UAW)
6600 934031220127 DIO REC BY459-15 S (ELCO) L
6601 319801010070 DIODE BAV21 (UAW)

6602 319801021590 DIODE BZX79-C15 (UAW)
6603 932205787683 DIODE EGP20G
6604 319801010070 DIODE BAV21 (UAW)
6605 319801010070 DIODE BAV21 (UAW)
6606 933497950683 DIODE RGP10J(GI)
6609 319801010010 DIODE 1N4148 (UAW)
6612 933543490133 DIO REC BYV27-50
6613 934031700113 DIODE BYD33V
6615 319801021590 DIODE BZX79-C15 (UAW)
6616 319801021590 DIODE BZX79-C15 (UAW)

6619 933497950683 DIODE RGP10J(GI)
6620 933497950683 DIODE RGP10J(GI)
6621 932212636682 DIODE 31DF6 6E
6623 933497950683 DIODE RGP10J(GI)
6625 933166850133 DIODE BZX79-B8V2 T
6626 933751660683 DIODE RGP10D (GI)
6627 933751650683 DIODE RGP15K (GI)
6802 319801010010 DIODE 1N4148 (UAW)

7101 932213500687 MOS TRANSTER SSP7N60A
7102 935264503112 IC TEA1504AP/N2 14P
7103 319802043590 TRANS. BC338-40
7111 932214014667 PHOTOCOUPLER TCET1103G 4P
7112▲933771100686 IC TL431CLPRP 3P
7114▲933510720686 IC MC78L05ACPRP 3P
7301 932216675682 IC LM1267
7304 932216297682 OSD IC MTV030N-19
7401 933922940682 IC TDA8172
7501 935267455112 IC TDA4841PS-V3 32P

7502 319802043310 TRANS PH2369 (UAW)
7503 319802043020 TRANS BF423 (UAW)
7506 319802040080 TRANS BC548C (UAW)
7601 319802043590 TRANS. BC338-40
7602 319802043490 TRANS BC328-40
7603 932211031687 FET POW MTP5P25(MOTAO L)
7604 319802040080 TRANS BC548C (UAW)
7605 934003960126 TRANS BSN254A
7606 934029910127 TRANSTER BU2522AF
7607 319802040080 TRANS BC548C (UAW)

7608 319802040080 TRANS BC548C (UAW)
7610 932214360687 TRANS IRF630M
7611 319802040160 TRANS BC558C (UAW)
7612 319802040080 TRANS BC548C (UAW)
7613 931101033687 TRA MOW TIP122
7615 319802043590 TRANS. BC338-40
7616 932214232687 FET POW IRF640
7617 932214360687 TRANS IRF630M
7621 933717590682 IC LM358N 8P (ON)
7682 319802043810 TRANS BC638 (UAW)

7683 319802043770 TRANS BC637 (UAW)
7684 319802043020 TRANS BF423 (UAW)
7685 934025870126 TRA SIG MPSA44
7801 823827442190 CPU IC 6148-K420PH-21A
7802 319802040160 TRANS BC558C (UAW)
7805 319802040080 TRANS BC548C (UAW)
7806 319802040160 TRANS BC558C (UAW)
7807 319802040080 TRANS BC548C (UAW)

1157 Video Panel

1157 313817855010 M30(107E)-P VIDEO PCB ASSY
1157 313817856490 M30(107E)-C VIDEO PCB ASSY

2702 225279508453 CCAP DC Y5V 1N 50V S Z A
2721 203803185109 ELCAP S 1V 10UF PM20 2E T
2722 225232626104 MU-LAYER CER CAP 1V 1N X7R
2723 203803522801 ECAP NP 1U 160V 105C NK
2724 203803454479 ELCAP S 25V 47UF PM20 2ET
2725 242254944346 SPARK GAP DSP-201M
2731 203803522801 ECAP NP 1U 160V 105C NK
2733 242254944346 SPARK GAP DSP-201M
2751 203803522801 ECAP NP 1U 160V 105C NK
2753 242254944346 SPARK GAP DSP-201M

2760 202055290803 CERC DC 50V 470P PM10 2E
2761 225279508453 CCAP DC Y5V 1N 50V S Z A
2763 202055290816 CERC DC 50V 4N7 PM10
2771 225279508453 CCAP DC Y5V 1N 50V S Z A
2772 202055790122 CERC 5V 330P PM2 2ET
2776 203803185229 ELCAP S 1V 22UF PM20 2E T
2778 203803135331 ELCAP S 16V 330UF PM20 2E T
2779 202055290598 CERC DC NPO 50V 47P PM5 2
2780 202055290598 CERC DC NPO 50V 47P PM5 2
2781 202055290598 CERC DC NPO 50V 47P PM5 2

2782 202055290598 CERC DC NPO 50V 47P PM5 2
2783 223555900099 CERC CAP 2KV 10N PM20 4E

Spare Parts List

3706 213810113471 RST CRB CR12A470RPM5A
3707 213810113101 RST CRB CR12 A 1R PM5A
3721 212010128479 CARBRST COMP 1/2W 47R PM10
3722 213811273274 CARBRST FLM CR25 270K PM5
3724 213810113102 RST CRB CR12 A1K PM5A
3725 213810113102 RST CRB CR12 A1K PM5A
3726 213810113102 RST CRB CR12 A1K PM5A
3731 212010128479 CARBRST COMP 1/2W 47R PM10
3732 213811273274 CARBRST FLM CR25 270K PM5
3743 213810113101 RST CRB CR12 A 1R PM5A

3744 213810113101 RST CRB CR12 A 1R PM5A
3745 213810113101 RST CRB CR12 A 1R PM5A
3751 212010128479 CARBRST COMP 1/2W 47R PM10
3752 213811273274 CARBRST FLM CR25 270K PM5
3762 213810113103 RST CRB CR12A10K PM5 A
3763 213810113332 RST CRB CR12A3K3PM5A
3764 213810113472 RST CRB CR12A4K7PM5A
3765 213810113682 RST CRB CR12A6K8PM5A
3767 213810113472 RST CRB CR12A4K7PM5A
3771 212010128152 CARBRST COMP 1/2W 1K5 PM10

3772 212010128153 CARBRST COMP 1/2W 15K PM10
3777 213810113101 RST CRB CR12 A 1R PM5A
3778 213810113102 RST CRB CR12 A1K PM5A

5702 242253597608 COIL 1MUH8 PM10
5721 313817874200 COIL 0.68uH PM10
5732 313817874200 COIL 0.68uH PM10
5752 313817874200 COIL 0.68uH PM10
5771 313810874950 BAR COIL 5UH PM10
5779 243853598025 IND FXD BEAD EMI 1MHZ 60RR
5781 242253594971 DRUM CHOKE COIL 1UH T
5782 242253594971 DRUM CHOKE COIL 1UH T

6722 319801010070 DIODE BAV21 (UAW)
6724 319801010070 DIODE BAV21 (UAW)
6732 319801010070 DIODE BAV21 (UAW)
6734 319801010070 DIODE BAV21 (UAW)
6735 319801010070 DIODE BAV21 (UAW)
6736 319801010070 DIODE BAV21 (UAW)
6737 319801010070 DIODE BAV21 (UAW)
6752 319801010070 DIODE BAV21 (UAW)
6754 319801010070 DIODE BAV21 (UAW)
6771 933493960683 DIODE RGP10G(GI)
6772 319801025680 DIODE BZX79-C5V6 (UAW)

7701 823827440540 DRIVER IC LM2469
7702 823827440530 BIAS AMP. IC LM2480
7761 319802040080 TRANS BC548C (UAW)

1158 KEY CNTR Panel

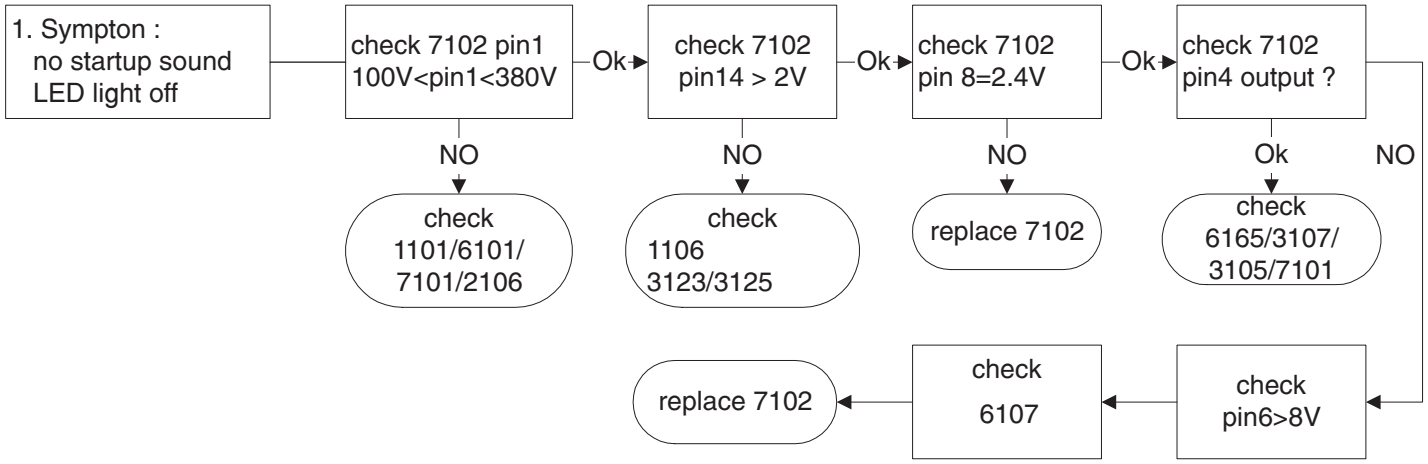
1158 313817855080 M30(107E)-KEY CNTR PCB ASSY

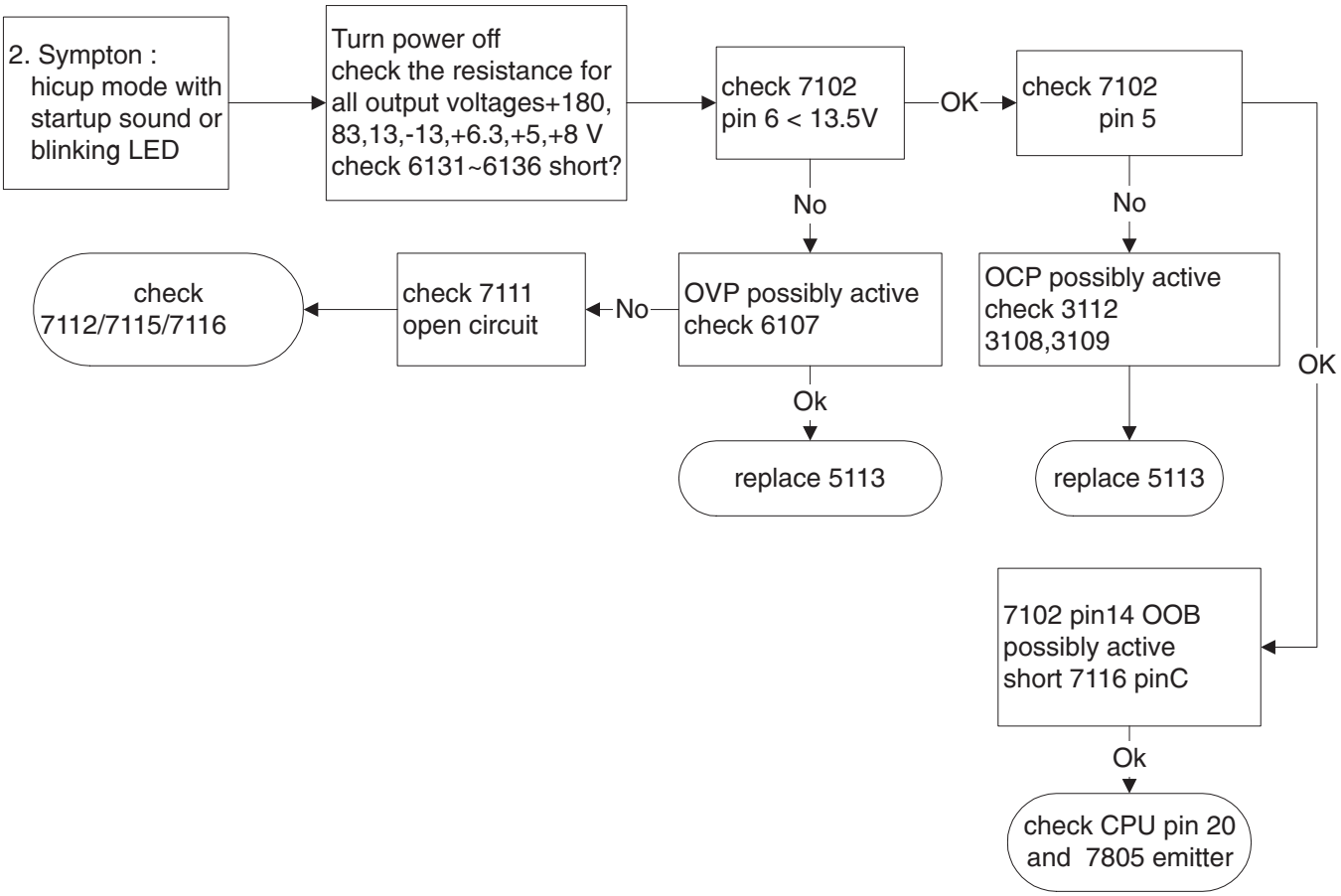
3891 213811611004 RST MFLM MF50SA1K PM1 A
3892 213811615603 RST MFLM MF50SA56KPM1A
3893 213811614702 RST MFLM MF50SA4K7PM1A
3894 213811611503 RST MFLM MF50SA15KPM1A
3895 213811612403 RST MFLM MF50SA24KPM1A

6891 932214603682 LED L-3WYGW

Repair Flow Chart

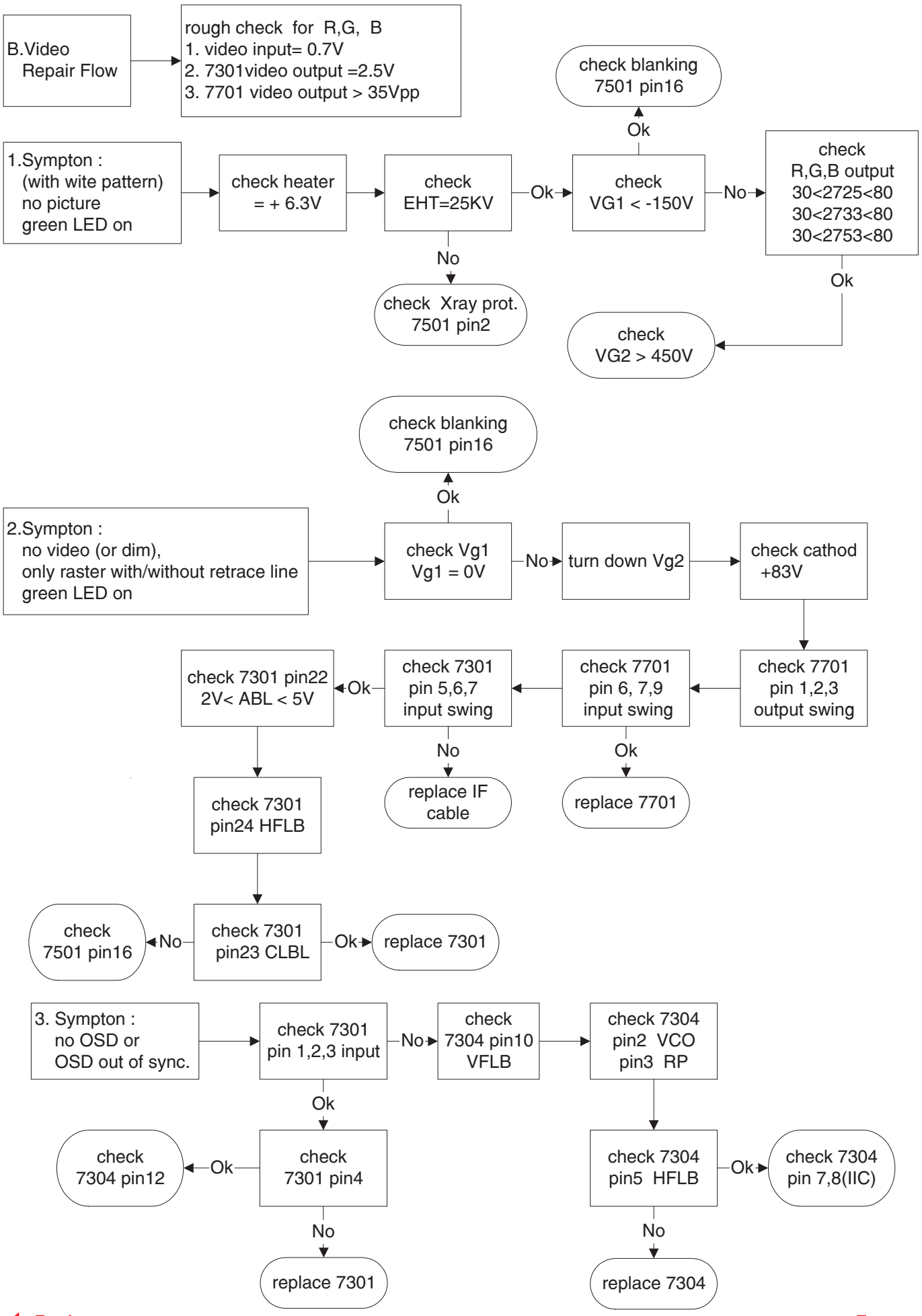
A. Power Supply Failure





Repair Flow Chart (Continued)

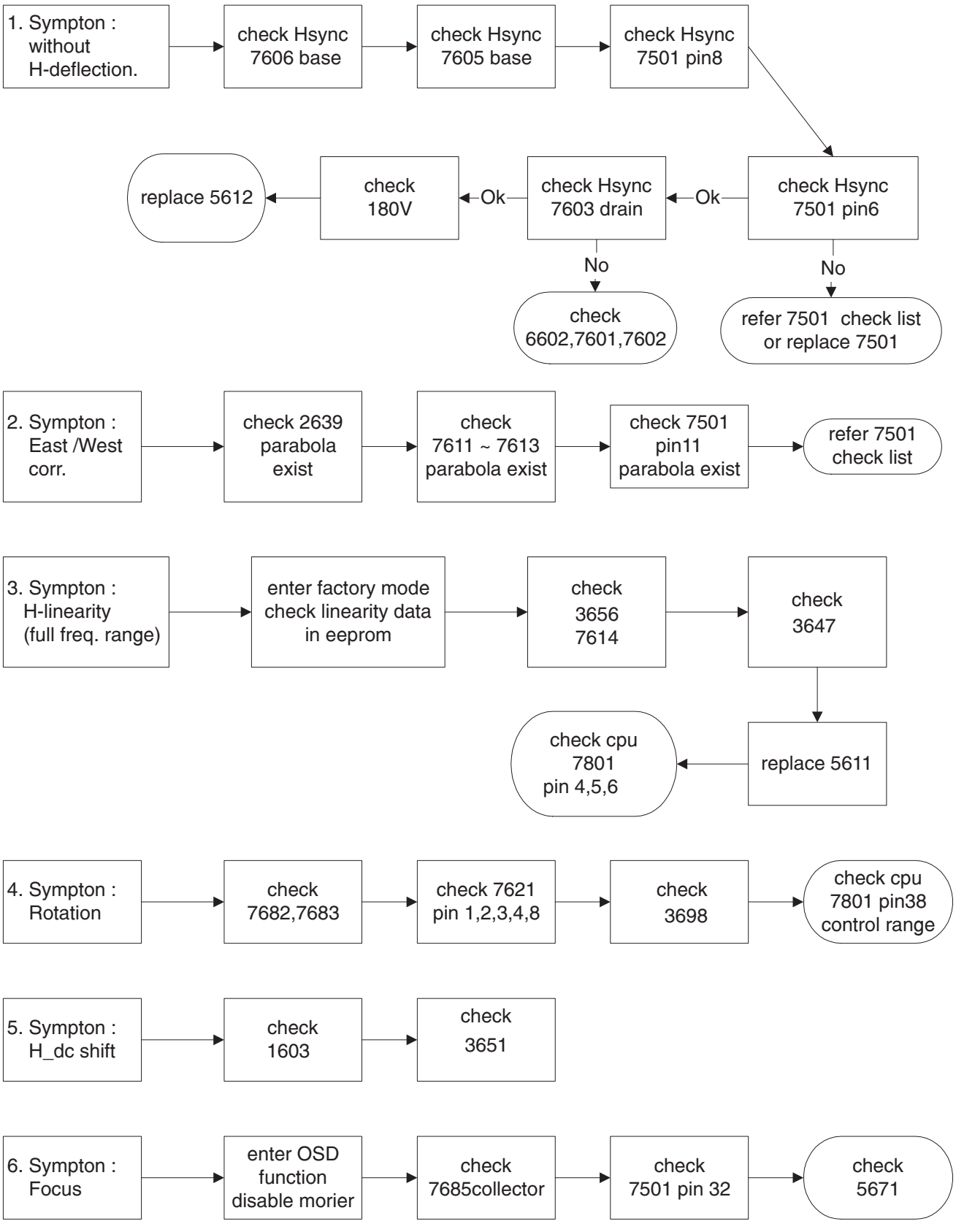
Go to cover page



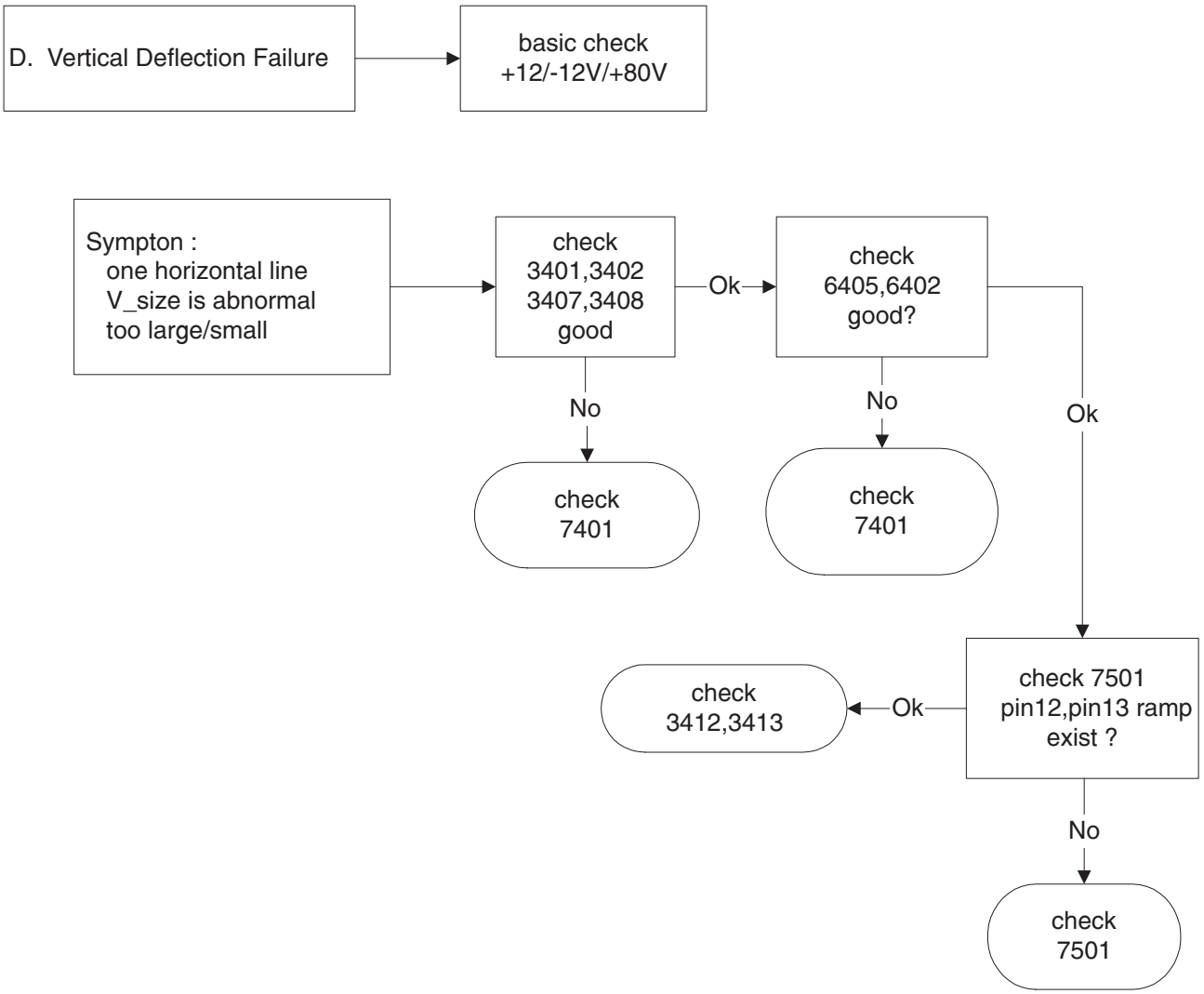
Back Forward

Repair Flow Chart (Continued)

C. Horizontal deflection output repair flow :



Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

E. CPU check list → Basic Check → check cpu pin6/ pin32= 5V
pin9/pin8=12MhZ
pin7=gnd

31. H-EHT → H size compensation for the load variance

10,11,12 (Q3,Q2,Q1) S-cap switch → check Q1-Q3
pin10~14
low : 0
hi :1

70K S-CAPACITOR SWITCH TABLE

Hor. Freq.(KHz)	Q1	Q2	Q3
< 27.00	0	0	0
27.50-33.24	0	0	0
33.24-36.51	0	0	0
36.51-42.38	1	0	1
42.38-47.48	0	1	0
47.48-53.10	0	1	0
53.10-58.25	1	1	0
58.25-61.89	0	1	1
61.89-66.00	1	1	1
> 66.00	1	1	1

33,34,40,41
Hsync / Vsync → check sync.
Hsync_in=pin40
Vsync_in=pin41
Hsync_out=pin34
Vsync_out=pin33 →
1 . Normal
Fhout=Fhin
Fvout=Fvin
2. Self test
Hout=48Khz
Fvout=72Hz
3.sync out of rang
Fhin>72.8kHz,<28kHz
Fvin>168Hz, <45Hz

18. Hunlock → check pin18
normal=Hi
blank=low

19. Blanking (mute) → check pin3
normal : low
change timing : Hi

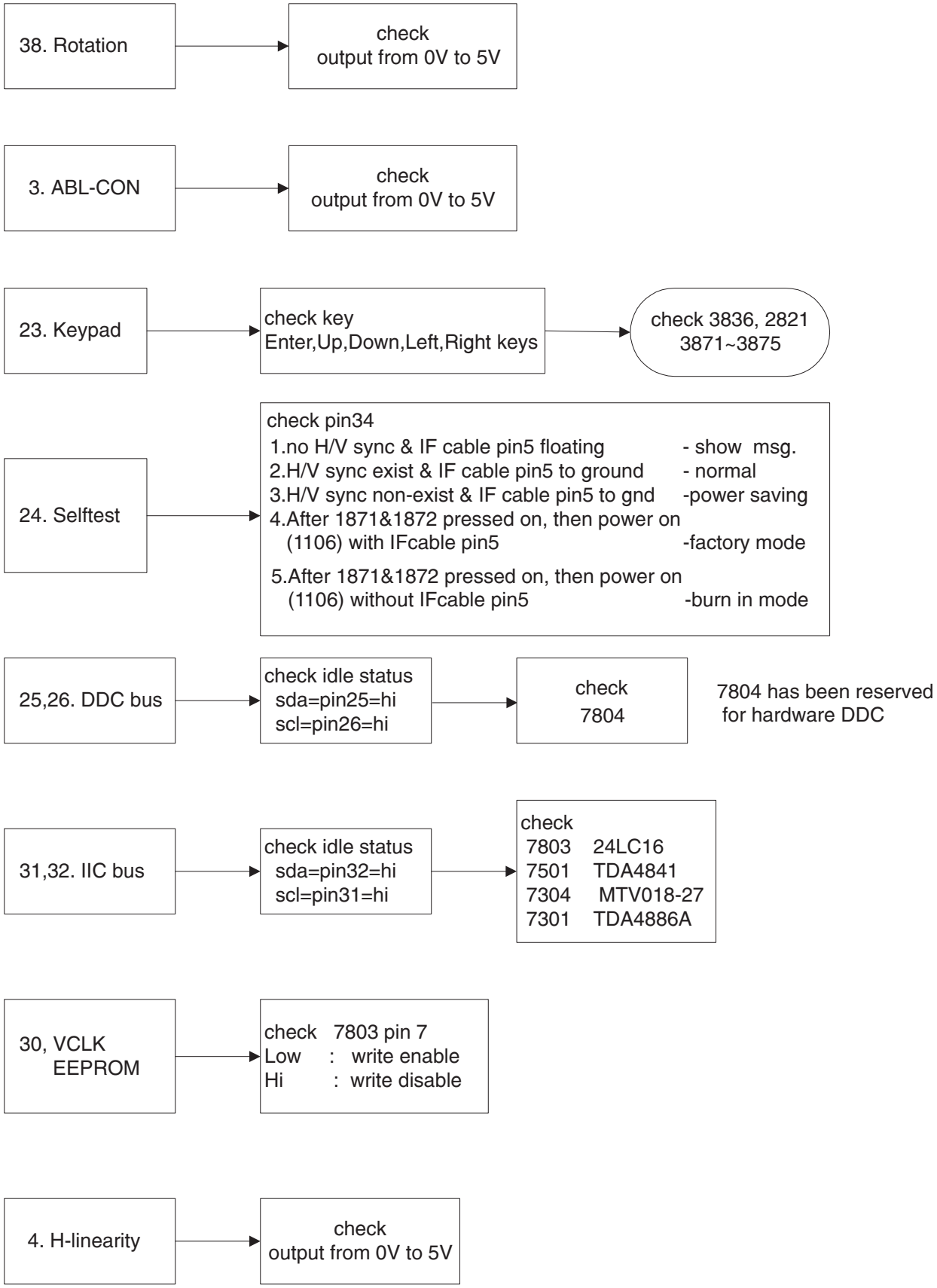
20, 22,27 P.S. LED → pin 27 STBY
pin 20 OFF →

power saving	pin27	pin20
normal	hi	hi
standby	low	hi
off	low	low

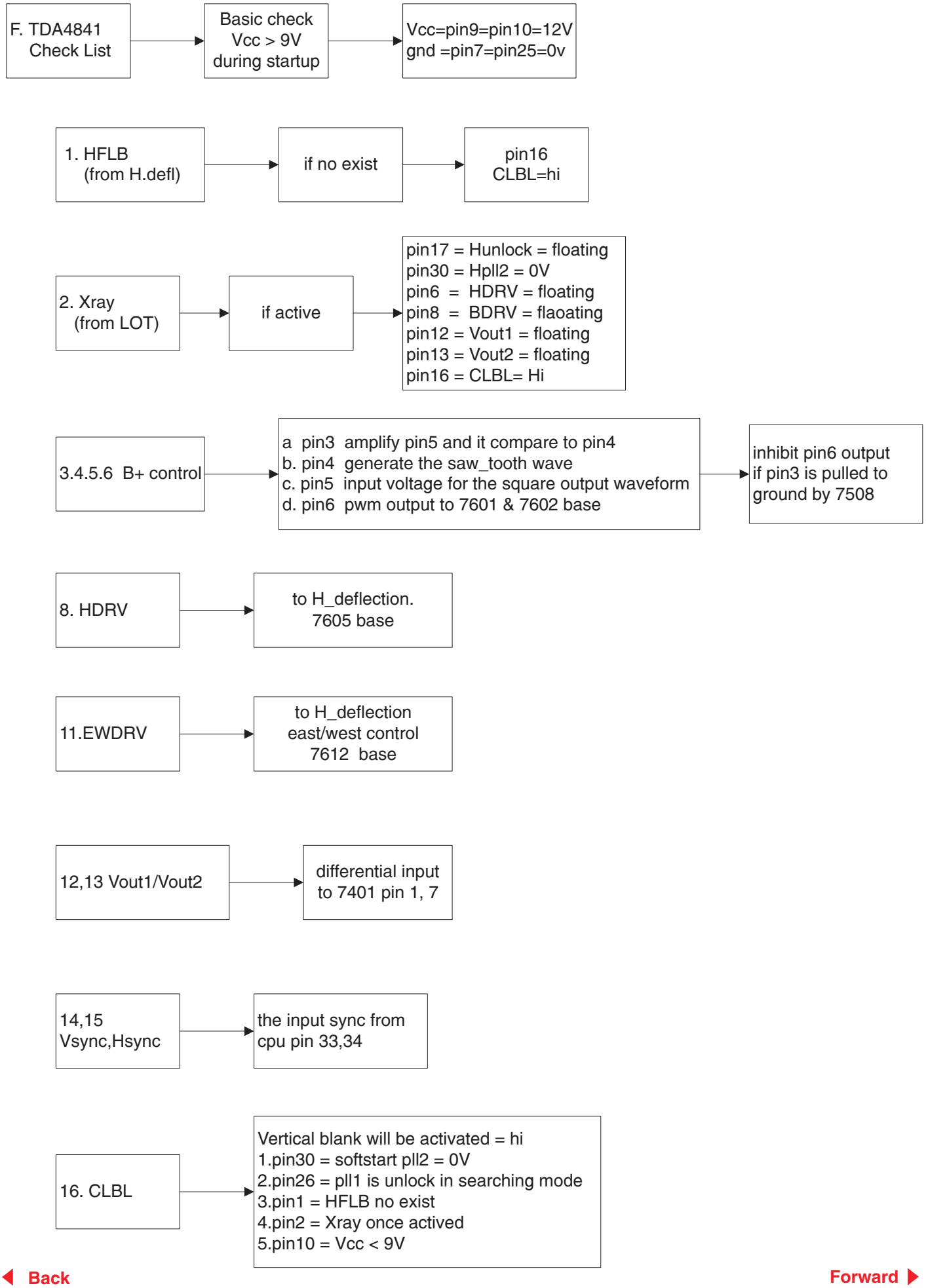
22. Degauss → check
active=hi
no active=low

5, Reset → check
from 5V to 0V → check
2814 / 2806 / 3834

Repair Flow Chart (Continued)



Repair Flow Chart (Continued)


F. TDA4841 Check List
Basic check Vcc > 9V during startup
Vcc=pin9=pin10=12V gnd =pin7=pin25=0v
1. HFLB (from H.defl)
if no exist
pin16 CLBL=hi
2. Xray (from LOT)
if active
pin17 = Hunlock = floating
pin30 = Hpll2 = 0V
pin6 = HDRV = floating
pin8 = BDRV = flaoating
pin12 = Vout1 = floating
pin13 = Vout2 = floating
pin16 = CLBL= Hi
3.4.5.6 B+ control
a pin3 amplify pin5 and it compare to pin4
b. pin4 generate the saw_tooth wave
c. pin5 input voltage for the square output waveform
d. pin6 pwm output to 7601 & 7602 base
inhibit pin6 output if pin3 is pulled to ground by 7508
8. HDRV
to H_deflection. 7605 base
11.EWDRV
to H_deflection east/west control 7612 base
12,13 Vout1/Vout2
differential input to 7401 pin 1, 7
14,15 Vsync,Hsync
the input sync from cpu pin 33,34
16. CLBL
Vertical blank will be activated = hi
1.pin30 = softstart pll2 = 0V
2.pin26 = pll1 is unlock in searching mode
3.pin1 = HFLB no exist
4.pin2 = Xray once actived
5.pin10 = Vcc < 9V

Repair Flow Chart (Continued)

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17. Hunlock → Hunlock pin is floating while pll1(pin26) is unlock in searching mode

18. IIC scl = hi
19 IIC sda = hi → the initial sequence of IIC IC 7501,7301,7304

21 EHT_compen. → compensate for the V_size owing the load variation

22,23,24
VAGC,VREF,VCAP → pin22 determin the AGC
pin23,pin24 determin frequency → 50Hz< freq. <160Hz

26,27,28,29
Hpll1,Hbuf,Href, Hcap → pin26 determin the pll1 loop filter
pin 27,28,29 H-Freq working range → 30K<freq.<70KHz

30. PLL2 → 1.compare the HFLB and control the phase of HDRV
2.softstart

31 EHT_compen. → compensate for the H_size owing the load variation

32. Focus → to 7685 for the V dynamic focus